I19.53/2: WA-85-1

Water Resources Data Washington Water Year 1985

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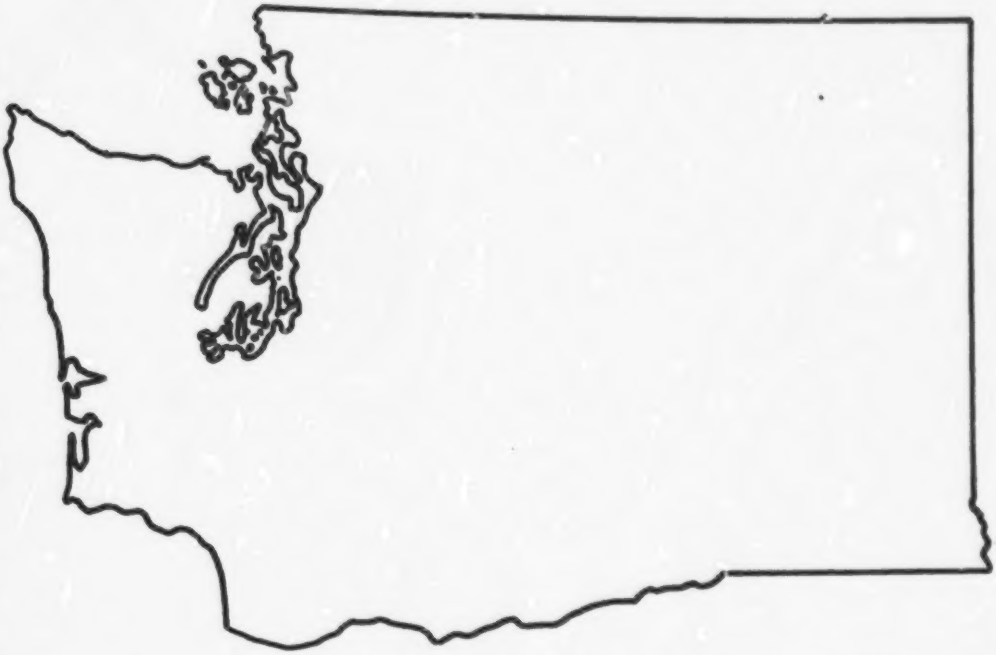

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-85-1
Prepared in cooperation with the State of Washington
and with other agencies

ORIGINAL

CALENDAR FOR WATER YEAR 1985

1984

OCTOBER

S	M	T	W	T	F	S
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1985

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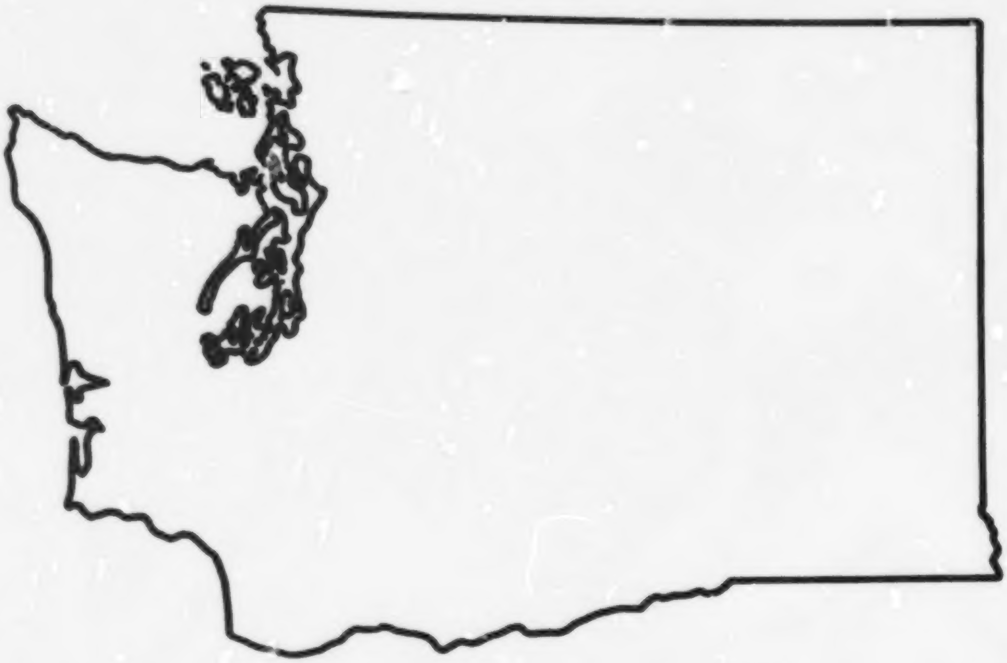
U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

1889

Water Resources Data Washington
Water Year 1985

By E.H. McGavock, W.D. Wiggins, R.L. Blazs, P.R. Boucher, L.L. Reed, and M.L. Smith



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-85-1
Prepared in cooperation with the State of Washington
and with other agencies

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UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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Pacific Northwest District
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Tacoma, Washington 98402

1987

PREFACE

This volume of the annual Washington hydrologic data report is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

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50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO. USGS/WRD/HD-87/235

2.

3. Recipient's Accession No.

4. Title and Subtitle
Water Resources Data
Washington
Water Year 1985

5. Report Date June 1987

6.

7. Author(s)

8. Performing Organization Rept. No. USGS-WDR-WA-85-1

9. Performing Organization Name and Address
U.S. Geological Survey, Water Resources Division
1201 Pacific Avenue, Suite 600
Tacoma, Washington 98402

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
U.S. Geological Survey, Water Resources Division
1201 Pacific Avenue, Suite 600
Tacoma, Washington 98402

13. Type of Report & Period Covered
Annual - Oct. 1, 1984 to
Sept. 30, 1985

14.

15. Supplementary Notes

Prepared in cooperation with the State of Washington and with other agencies.

16. Abstract (Limit: 200 words)

Water resources data for the 1985 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels of wells. This report contains discharge records for 196 gaging stations; stage only records for 6 gaging stations; stage and contents for 41 lakes and reservoirs; water quality for 32 streamflow-gaging stations and 12 ungaged streamsites; and water levels for 76 observation wells. Also included are data for 14 crest-stage partial-record stations and 56 partial-record or miscellaneous streamflow stations. Locations of these sites are shown on figures 4a, 4b, 5, 6a, 6b, 34a, and 34b. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Washington.

17. Document Analysis a. Descriptors

*Washington, *Hydrologic Data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Sampling sites, Water levels, Water analyses.

b. Identifiers/Open-Ended Terms

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c. COSATI Field/Group

18. Availability Statement: No restriction on distribution.
This report may be purchased from:
National Technical Information Service
Springfield, VA 22161

19. Security Class (This Report) UNCLASSIFIED

20. Security Class (This Page) UNCLASSIFIED

21. No. of Pages 478

22. Price

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

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WATER RESOURCES DATA FOR WASHINGTON 1985

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with state agencies, obtains a large amount of data pertaining to the water resources of Washington each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Washington."

This report includes records on both surface and ground water in the State. Specifically, it contains: (1) Discharge records for 196 stream-gaging stations, stage only records for 6 gaging stations, 56 partial-record or miscellaneous streamflow stations, and 14 crest-stage, partial-record streamflow stations; (2) stage and content records for 41 lakes and reservoirs; (3) water-quality records for 32 streamflow-gaging stations, and 12 ungaged streamsites; and (4) water-level records for 76 observation wells. Records included for stream stages and for ground-water levels are only a small fraction of those obtained during the water year.

This series of annual reports for Washington began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Washington were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 12, 13, and 14." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Distribution Branch, Text Products Section, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

Publications similar to this report are published annually by the Geological Survey for all states. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report WA-85-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on back of title page or by telephone (206) 593-6510.

COOPERATION

The U.S. Geological Survey and organizations of the State of Washington have had joint-funding agreements for the systematic collection of surface-water and water-quality records since 1909. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through joint-funding agreements with the Survey are:

Washington State Department of Ecology, Andrea Beatty Rinicker, director
Washington State Department of Fisheries, William R. Wilkerson, director
Washington State Department of Transportation, Duane Berentson, secretary
City of Seattle, Department of Lighting, R. W. Hardy, superintendent
Municipality of Metropolitan Seattle, Alan Gibbs, executive director
City of Tacoma, Department of Public Utilities, P. J. Nolan, director
City of Tacoma, Department of Public Works, Fred Thompson, director
Chelan County, P.U.D. No. 1, Gerald L. Copp, manager
King County, Department of Public Works, Donald J. LaBelle, director
Lewis County, Department of Public Works, Verne Wagar, director
Quinault Business Committee, Joseph B. DeLaCruz, tribal chairman
Makah Tribal Council, George Bowechop, chairman
Yakima Tribal Council, Roger Jim, chairman
Hoh Tribal Council, Yvonne Hudson, Jr., chairwoman
Snohomish County Department of Public Works, Gerald E. Weed, director
Island County Board of Commissioners, William Dunlop, chairman
San Juan County Board of Commissioners, Thomas R. Cowan, chairman
Puyallup Indian Nation, Frank Wright, Jr., chairman
City of Bellevue, Department of Public Works, Hugh Warren, director

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 34 gaging stations; the U.S. Department of Energy, in collecting records for 2 water-quality stations; the Bureau of Reclamation, U.S. Department of Interior, in collecting records for 10 gaging stations; the U.S. Department of State, in collecting records for 15 gaging stations; the Bonneville Power Administration, U.S. Department of Energy, in collecting records for 7 gaging stations; and the Bureau of Indian Affairs, U.S. Department of Interior, in collecting records for 4 gaging stations.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Washington has a distinctly varied climate resulting from two features: (1) the Cascade Range and (2) the prevailing westerly winds from the Pacific Ocean. The north-south trending Cascades divide the State into the western part with a marine climate--with cool, wet winters and warm, relatively dry summers and into the eastern part with a more continental climate of cold winters and hot, dry summers.

Although the average annual precipitation in Washington is about 40 inches, the western part receives about 70 inches and the eastern about 20 inches. Locally, average annual precipitation ranges from only 7 inches in the driest part of eastern Washington to about 150 inches in the Olympic Mountains in western Washington. About two-thirds of the precipitation in Washington occurs in the fall and winter (October through March), either as rain at the lower elevations or as snow at the higher elevations. Heavy snowpack and glaciers in the Olympic Mountains and Cascade Range are major sources of water for many rivers in Washington.

The runoff in Washington is greatly influenced by the varied topography and rainfall and falls into two general categories: (1) the snowmelt-runoff regime of the eastern part of the State; and (2) the rainfall-runoff regime that predominates in western Washington. The Naselle River is typical of the coastal streams whose major runoff occurs during the 4 months November through February; only about 10 percent runs off during the 5 months May through September. The runoff is closely related to precipitation and because of the relatively low elevations, the heavy winter precipitation falls as rain and runs off quickly. Thunder Creek is a glacier-fed stream draining a high elevation where almost all winter precipitation falls as snow. The distribution of runoff is opposite to that of the Naselle, with the maximum runoff occurring in July and the high-runoff period extending from May through September. The period of low flow lasts all winter. The Colville River exhibits a typical runoff pattern for a stream in eastern Washington. Much of the winter precipitation falls as snow which does not melt until the warmer temperatures of spring cause the high-runoff period to occur from April through June. By July the snow has melted and the streamflow becomes low.

Surface-Water Conditions

Precipitation during the 1985 water year was generally below normal in both eastern and western Washington. The total precipitation for the water year ranged between 70 and 90 percent of normal throughout the State. Precipitation during January was the farthest from normal for a month. It was about 10 percent of normal in western Washington and about 20 percent of normal in eastern Washington.

Rainfall in western Washington was less than 75 percent of normal during the months of December, January, February, May, July, and August. It was near normal during October, March, April, and September and was more than 125 percent of normal during November and June.

In eastern Washington, precipitation was less than 75 percent of normal during the months of October, December, January, April, June, July, and August. It was near normal during February, March, and May and was more than 125 percent of normal during November and September.

The annual mean runoff in both western and eastern Washington during the 1985 water year was generally below normal. The Chehalis River near Grand Mound and the Skykomish River near Index are typical of western Washington streams. The annual mean flows for those two streams were 76 percent and 82 percent of normal, respectively, during 1985. In eastern Washington, the Spokane River at Spokane and the Klickitat River near Pitt had flows for 1985 that were 70 percent and 72 percent of normal, respectively. The monthly mean discharges are compared with long-term medians at those four gaging stations in figures 3a and 3b. The monthly mean flow was significantly above normal in the Chehalis and Klickitat Rivers only during November. The monthly mean flows were above normal in the Skykomish River during April, May, and June. The Spokane River flow was significantly above normal only during April.

There were no extreme floodflows during the 1985 water year in Washington. The annual peak flows at most gaging stations had recurrence intervals of 2 years or less meaning that those peak flows could be expected to be exceeded every other year or more often. Peak discharges for some representative gaging stations are shown in Table 1.

Table 1.--Comparison of peak discharge for the 1985 water year with the peak discharge for the period of record at long-term stations

Station number	Station name	Drainage area (mi^2)	Peak discharge 1985 Water year: Date	Peak discharge 1985 Water year: ft^3/s	Peak discharge 1985 Water year: Recurrence interval (years)	Peak discharge Period of record: Date	Peak discharge Period of record: ft^3/s
12010000	Naselle River near Naselle	54.6	11-28	3,610	1	1-22-35	11,100
12039500	Quinault River at Quinault Lake	264	11- 3	14,000	1	11- 4-55	50,200
12048000	Dungeness River near Sequim	156	11- 3	1,610	1	11-27-49	6,820
12082500	Nisqually River near National	133	6- 7	5,380	2	12- 2-77	17,100
12092000	Puyallup River near Electron	92.8	6- 7	4,060	2	11-22-59	10,800
12134500	Skykomish River near Gold Bar	535	6- 7	23,800	1	12-26-80	90,400
12205000	North Fork Nooksack River below Cascade Creek, near Glacier	105	10-10	4,400	2	11-26-49	10,300
12409000	Colville River at Kettle Falls	1,007	4-15	950	2	1-21-74	3,440
12449950	Methow River near Pateros	1,772	5-23	8,000	1	5-31-72	28,800
12510500	Yakima River at Kiona	5,615	4-16	7,280	1	12-23-33	67,000
13351000	Palouse River at Hooper	2,500	2-25	4,900	1	2- 4-63	33,500
14113000	Klickitat River near Pitt	1,297	6- 7	4,300	1	1-15-74	47,400
14232500	Cispus River near Randle	321	6- 7	9,990	3	1-15-74	21,700

Usable storage in Lake Merwin in western Washington was at or above the normal usable maximum all year except for the months of November and September when it was 92 percent and 83 percent of the normal usable maximum, respectively. Usable storage in Lake Cushman began the water year at 61 percent of the normal usable maximum, fell to 41 percent by the end of January, rose to 86 percent by July, and was 74 percent at the end of the water year in September. The usable storage in Ross Reservoir, also in western Washington, began the water year at 88 percent of the normal usable maximum, fell steadily to 8 percent by the end of March, rose again to 98 percent by the end of June, and was 86 percent at the end of the water year in September. In eastern Washington, the usable storage in Lake Chelan began the water year at 76 percent of the normal usable maximum, fell steadily to 20 percent by the end of March, rose to 97 percent by July, and ended the year at 90 percent in September. At Franklin D. Roosevelt Lake, also in eastern Washington, the usable storage began the 1985 water year at 95 percent of the normal usable maximum, fell to 19 percent by the end of April, and rose again to 95 percent by the end of the water year in September.

Surface-Water Quality

The National Stream Quality Accounting Network (NASQAN) and Bench-Mark Program were established to assess the quality of the nation's water through systematic continuing measurements at specific key locations. Washington has 18 NASQAN stations in the Pacific Slope, Snake River, and Lower Columbia River basins; two are bench-mark stations in the Pacific Slope Basin. One surface-water-quality station is operated in the Columbia Basin as adjunct to one of the NASQAN stations. The rivers east of the Cascade Mountains are generally more mineralized than those west of the Cascade Mountains.

Specific conductance in the 11 surface water streams east of the Cascades was less than 100 micromhos about 25 percent of the time, 100 to 200 micromhos about 50 percent of the time, and 201 to 300 micromhos and greater than 300 micromhos about 10 percent of the time each. In comparison, in the 10 surface-water streams west of the Cascades, specific conductance was less than 100 micromhos about 90 percent of the time and between 100 to 200 micromhos about 10 percent of the time. No conductance greater than 200 micromhos was measured in the western streams. The bench-mark station, Andrews Creek near Mazama, Washington, was the least mineralized of all the streams measured east of the Cascades. Cowlitz River at Kelso, Washington, which is heavily influenced by Mt. St. Helens drainage, is the most mineralized stream measured west of the Cascades.

Dissolved-solids concentration and streamflow generally have an inverse relation. The smallest concentrations of dissolved solids occur during the high flow of late fall, winter, and early spring runoff when rainfall and snowmelt are the major sources of water. Dissolved solids are most concentrated in Washington during late summer and early fall when base flow from ground-water sources is the dominant component of flow. Dissolved solids in streams west of the Cascade Mountains were less than 100 mg/L about 60 percent of the time, 100 to 200 mg/L about 30 percent of the time and 200 to 300 mg/L about 10 percent of the time. No streams east of the Cascades had dissolved solids that exceeded 300 mg/L even in the lowest flow periods. In contrast, all streams west of the Cascades had dissolved solids of less than 100 mg/L even during the driest and lowest flow periods.

Concentrations of some toxic metals are found occasionally in a few streams both east and west of the Cascades. Some metals, including barium, cadmium, chromium, and copper are found in the Pend Oreille River and the Columbia River below the Canadian Border in concentrations that range from 5 to 10 mg/L and occasionally exceed 10 mg/L.

Surface waters in Washington are generally classified as clear and carry only small amounts of sediment. Water flowing in the Columbia River and streams draining the Olympic Mountains are very low in sediment, less than 10 mg/L, and at times, there is no measurable sediment. Three major streams that do carry relatively large concentrations of sediment are the Skagit, Puyallup, and Cowlitz Rivers, all located west of the Cascades. The Skagit and Puyallup Rivers, at times, carry sediment that range from 100 to 500 mg/L due to large concentrations of glacier flour from Glacier Peak and Mt. Rainier, respectively. Cowlitz River, also west of the Cascades, carries sediment concentrations that range from about 100 to several thousand mg/L as a result of Mt. St. Helens debris and ash deposits. The sediment carried by the Cowlitz River is in a decreasing trend. The streams east of the Cascades that characteristically carry sediment concentrations greater than 10 mg/L are those that carry return flow from heavily irrigated and farmed lands in the semi-arid region. The Yakima River carries sediment loads that characteristically exceed 10 mg/L but seldom exceed about 50 mg/L.

Ground Water

The ground-water levels in western Washington are generally not well defined by the existing network of observation wells. In eastern Washington, water levels in an observation well near Spokane are representative of those in the Spokane River valley. During the 1985 water year, the water level in the Spokane well was about 3 feet above average during October, November, and December, then fell to slightly below average during February and March. During April and May, it rose again and was as much as 3 feet above average. During June, July, and August, it again fell to slightly below average and then rose again to average at the end of September.

SPECIAL NETWORKS AND PROGRAMS

HYDROLOGIC BENCH-MARK NETWORK is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

NATIONAL STREAM QUALITY ACCOUNTING NETWORK (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

THE NATIONAL TRENDS NETWORK (NTN) is a 150 station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gasses. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

RADIOCHEMICAL PROGRAM is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

TRITIUM NETWORK is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1985 water year that began October 1, 1984, and ended September 30, 1985. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 4a, 4b, 5, 6a, 6b, 34a, and 34b. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells and, in Washington, for surface-water stations where only miscellaneous measurements are made.

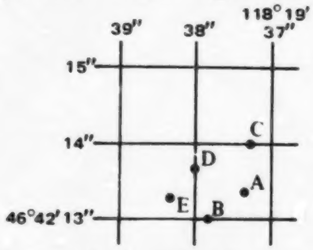
Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 12020000, which appears just to the left of the station name, includes the two-digit Part number "12" plus the six-digit downstream-order number "020000." The Part number designates the major river basin; for example, part "12" refers to the Pacific slope basins in Washington and upper Columbia River basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a one-second grid. This site-identification number, once assigned, is a pure number, and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure below.)



Coordinates for miscellaneous site A (464213118193701) and miscellaneous site B (464213118193702)

Coordinates for miscellaneous site C (464214118193701)

Coordinates for wells D (464213118193801) and E (464213118193802)

Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude).

Local Identifier Well-Numbering System

In addition to the latitude-longitude based site identification number, wells in the State of Washington are assigned local well numbers. These numbers are based on and show locations of wells according to the rectangular system for subdivision of public land, indicating township, range, section, and 40-acre tract within the section. For example, in the well number 25/43E-15M1, the part preceding the hyphen indicates successively the township and range (T.25 N., R.43 E.) north and east of the Willamette base line and meridian. (Because all townships in Washington are north of the Willamette base line the letter "N", indicating north is omitted; and because most of the State is east of the Willamette meridian the letter "E" is sometimes omitted for those ranges east of the Willamette meridian, but "W" is always included when the range lies west of the Willamette meridian). The first number following the hyphen indicates the section (sec.15) and the letter (M) given the 40-acre subdivision of the section as shown in figure 2. The last number (1) is the serial number of the well in that particular 40-acre tract. Thus, the first well recorded in NW¼SW¼ sec.15, T.25 N., R.43 E., would have the number 25/43-15M1, and the second well would have the number 25/43-15M2 or 25/43E-15M2. See figure 2.

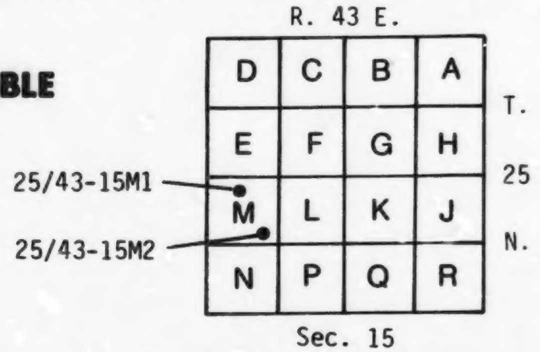


Figure 2. Local identifier well numbering system.

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 4a and 4b.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relations between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurments, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have information available from surveys, curves, or tables that define the relation of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Discharges over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the validity of the recorded gage height is so questionable that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages are based on information developed by the Hydraulics and Hydrology Committee of the Pacific Northwest River Basins Commission.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means the instantaneous maximum discharge was revised; "(m)" the instantaneous minimum was revised; and "(P)" the peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see "DEFINITION OF TERMS"), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, special methods of computation, conditions that affect natural flow at the station and, possibly, other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the Washington office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual state data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under the "REMARKS" paragraph. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft^3/s; the nearest tenth between 1.0 and 10 ft^3/s; whole numbers between 10 and 1,000 ft^3/s; and 3 significant figures for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff because of the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation, or other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, changes in contents of reservoirs, or other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Monthly records for several ungaged sites are given in a separate section following the gaged sites. The accuracy of records for ungaged sites is generally lower than that for gaged sites, depending on the precision of the computation method and the accuracy of data used in the computations.

For most gaging stations, unpublished, detailed information, on file in the Washington office, includes discharge measurements, gage-height records, and rating tables. Many gaging-station records in Washington through 1967 have been analyzed to determine several statistical summaries: (1) The number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year.

Other Federal and State agencies have collected discharge data at other sites in Washington during the current water year. Although these records have not been published by the U.S. Geological Survey, the National Water Data Exchange, NAWDEX, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of these sites and will furnish information about them.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A CONTINUING-RECORD STATION is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A PARTIAL-RECORD STATION is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A MISCELLANEOUS sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figures 6a and 6b.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, it is important that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, treating the samples to prevent changes in quality pending analysis, and shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," (TWRI), Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" in this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey Washington office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see "DEFINITION OF TERMS") are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey office whose address is given on the back of the title page of this report.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, maximum, minimum, and mean temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Washington office.

Sediment

Suspended-sediment concentrations are determined from samples collected by one of the standard sampling techniques discussed in TWRI, Book 3, Chapter C2, "Field methods for measurement of fluvial sediment," 1985 revision. Samples are obtained using standard depth- or point-integrating samplers, or by means of an approved pumping sampler. Mean concentrations for the sampled cross section are in turn determined from these samples.

During periods of rapidly changing flow or rapidly changing suspended-sediment concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, periodic measurements of particle-size distributions for the suspended-sediment, bed-load, and bed-material samples are included for stations where samples were obtained to measure this parameter.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological. Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

Records of Ground-Water Levels

Only water-level data from a few of the many observation wells in Washington are given in this report. Locations of the observation wells in Washington listed in this report are shown in figures 34a and 34b.

Although, in this report, records of water levels are presented for fewer than 50 wells, records are also obtained through cooperative efforts of many Federal, State, and local agencies for several thousand observation wells throughout Washington. These records may be placed in computer storage, published in reports, or kept in files. Information about the availability of ground-water data may be obtained from the District Chief, Pacific Northwest District, U.S. Geological Survey, 1201 Pacific Avenue, Suite 600, Tacoma, Washington 98402.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundreth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and(or) screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes the land-surface elevation at the well. The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorder, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's District offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

ACRE-FOOT (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

ADENOSINE TRIPHOSPHATE (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

ALGAE are mostly aquatic single-celled, colonial, or multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

ALGAL GROWTH POTENTIAL (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

AQUIFER is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

ARTESIAN means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

BACTERIA are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

> TOTAL COLIFORM BACTERIA are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters (mL) of sample.

FECAL COLIFORM BACTERIA are bacteria that are present in the intestine or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

FECAL STREPTOCOCCAL BACTERIA are bacteria found also in the intestine of warmblooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

BED MATERIAL is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

BIOCHEMICAL OXYGEN DEMAND (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

BIOMASS is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

ASH MASS is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnance at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

DRY MASS refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

ORGANIC MASS or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash and dry mass.

WET MASS is the mass of living matter plus contained water.

BOTTOM MATERIAL: See Bed material.

CELLS/VOLUME refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

CHEMICAL OXYGEN DEMAND (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

CHLOROPHYLL refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

COLOR UNIT is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

CONTENTS is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

CONTROL designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

CONTROL STRUCTURE as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

CUBIC FOOT PER SECOND (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

CUBIC FOOT PER SECOND-DAY [$(ft^3/s)/d$] is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

CUBIC FEET PER SECOND PER SQUARE MILE [$(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

DISCHARGE is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

MEAN DISCHARGE (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

INSTANTANEOUS DISCHARGE is the discharge at a particular instant of time.

DISSOLVED refers to that material in a representative water sample which passes through a 0.45-um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

DISSOLVED-SOLIDS CONCENTRATION of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

DRAINAGE AREA of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

DRAINAGE BASIN is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

GAGE HEIGHT (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

GAGING STATION is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

HARDNESS of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

HYDROLOGIC BENCH-MARK NETWORK is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

HYDROLOGIC UNIT is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Offoce of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

LAND-SURFACE DATUM (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

MEASURING POINT (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

METAMORPHIC STAGE refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

METHYLENE BLUE ACTIVE SUBSTANCES (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

MICROGRAMS PER GRAM (ug/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

MICROGRAMS PER LITER (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

MILLIGRAMS PER LITER (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

NATIONAL STREAM QUALITY ACCOUNTING NETWORK (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

NATIONAL TRENDS NETWORK (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

ORGANISM is any living entity.

ORGANISM COUNT/AREA refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

ORGANISM COUNT/VOLUME refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

TOTAL ORGANISM COUNT is the total number of organisms collected and enumerated in any particular sample.

PARAMETER CODE is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

PARTIAL-RECORD STATION is a particular site where limited streamflow and (or) water-quality data are collected systematically over a period of years for use in hydrologic analyses.

PARTICLE SIZE is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

PARTICLE-SIZE CLASSIFICATION used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation
Silt..........	.004 - .062	Sedimentation
Sand..........	.062 - 2.0	Sedimentation or sieve
Gravel........	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

PERCENT COMPOSITION is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population in terms of types, numbers, mass, or volume.

PERIPHYTON is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

PESTICIDES are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

PICOCURIE (PC, pCi) is one trillionth (1 x 10E-12) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7 x 10E+10 radioactive disintegrations per second. A picocurie yields 2.22 disintegrations per minute (dpm).

PLANKTON is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

> PHYTOPLANKTON is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

BLUE-GREEN ALGAE are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

DIATOMS are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

GREEN ALGAE have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

ZOOPLANKTON is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

PRIMARY PRODUCTIVITY is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

MILLIGRAMS OF CARBON PER AREA OR VOLUME PER UNIT TIME [(mg C/m^2)/time] FOR PERIPHYTON AND MACROPHYTES AND [(mg C/m^3)/time] FOR PHYTOPLANKTON are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

MILLIGRAMS OF OXYGEN PER AREA OR VOLUME PER UNIT TIME [(mg $O2/m^2$)/time] PERIPHYTON AND MACROPHYTES AND [(mg $O2/m^3$)/time] FOR PHYTOPLANKTON are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

RADIOCHEMICAL PROGRAM is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

RECOVERABLE FROM BOTTOM MATERIAL is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

RETURN PERIOD is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

RUNOFF IN INCHES (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

SEDIMENT is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

BED LOAD is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed very close to the bed surface. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

BED LOAD DISCHARGE (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

SUSPENDED SEDIMENT is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

SUSPENDED-SEDIMENT CONCENTRATION is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

MEAN CONCENTRATION is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

SUSPENDED-SEDIMENT DISCHARGE (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

SUSPENDED-SEDIMENT LOAD is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

TOTAL-SEDIMENT DISCHARGE (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

TOTAL-SEDIMENT LOAD or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-DAY 10-YEAR LOW FLOW (7 Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

SODIUM-ADSORPTION-RATIO (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

SOLUTE is any substance that is dissolved in water.

SPECIFIC CONDUCTANCE is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

STAGE-DISCHARGE RELATION is the relation between gage height (stage) and the volume of water, per unit of time, flowing in a channel.

STREAMFLOW is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

SUBSTRATE is the physical surface upon which an organism lives.

NATURAL SUBSTRATE refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

ARTIFICIAL SUBSTRATE is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

SURFACE AREA of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

SURFICIAL BED MATERIAL is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

SUSPENDED (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-um filter.

SUSPENDED, RECOVERABLE is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45-um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

SUSPENDED, TOTAL is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45-um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

TAXONOMY is the division of biology concerned with the classification and naming of organisms. The classificiation of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

THERMOGRAPH is an instrument that continuously records variations of temperature on a chart. The more general term "termperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

TIME-WEIGHTED AVERAGE is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

TONS PER ACRE-FOOT indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

TONS PER DAY (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

TOTAL is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

TOTAL DISCHARGE is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

TOTAL, RECOVERABLE is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To ahieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

TRITIUM NETWORK is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

WATER YEAR in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

WEIGHTED AVERAGE is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

Forty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. WATER TEMPERATURE-INFLUENTIAL FACTORS, FIELD MEASUREMENT, AND DATA PRESENTATION, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI, Book 1, Chapter D1. 1975. 65 pages.
1-D2. GUIDELINES FOR COLLECTION AND FIELD ANALYSIS OF GROUND-WATER SAMPLES FOR SELECTED UNSTABLE CONSTITUENTS, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
2-D1. APPLICATION OF SURFACE GEOPHYSICS TO GROUND-WATER INVESTIGATIONS, by A. A. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
2-E1. APPLICATION OF BOREHOLE GEOPHYSICS TO WATER-RESOURCES INVESTIGATIONS, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
3-A1. GENERAL FIELD AND OFFICE PROCEDURES FOR INDIRECT DISCHARGE MEASUREMENTS, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
3-A2. MEASUREMENT OF PEAK DISCHARGE BY THE SLOPE-AREA METHOD, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
3-A3. MEASUREMENT OF PEAK DISCHARGE AT CULVERTS BY INDIRECT METHODS, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
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3-A9. MEASUREMENT OF TIME OF TRAVEL AND DISPERSION IN STREAMS BY DYE TRACING, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A10. DISCHARGE RATINGS AT GAGING STATIONS, by E. J. Kennedy, USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

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3-A13. COMPUTATION OF CONTINUOUS RECORDS OF STREAMFLOW, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

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3-B2. INTRODUCTION TO GROUND-WATER HYDRAULICS, A PROGRAMED TEXT FOR SELF-INSTRUCTION, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. TYPE CURVES FOR SELECTED PROBLEMS OF FLOW TO WELLS IN CONFINED AQUIFERS, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-C1. FLUVIAL SEDIMENT CONCEPTS, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. FIELD METHODS FOR MEASUREMENT OF FLUVIAL SEDIMENT, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

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4-A1. SOME STATISTICAL TOOLS IN HYDROLOGY, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

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5-A4. METHODS FOR COLLECTION AND ANALYSIS OF AQUATIC BIOLOGICAL AND MICROBIOLOGICAL SAMPLES, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. METHODS FOR DETERMINATION OF RADIOACTIVE SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. QUALITY ASSURANCE PRACTICES FOR THE CHEMICAL AND BIOLOGICAL ANALYSES OF WATER AND FLUVIAL SEDIMENTS, by L. C. Friedman and D. E. Erdmann. 1982. 181 pages.

5-C1. LABORATORY THEORY AND METHODS FOR SEDIMENT ANALYSIS, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. FINITE-DIFFERENCE MODEL FOR AQUIFER SIMULATION IN TWO DIMENSIONS WITH RESULTS OF NUMERICAL EXPERIMENTS, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. COMPUTER MODEL OF TWO-DIMENSIONAL SOLUTE TRANSPORT AND DISPERSION IN GROUND WATER, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. A MODEL FOR SIMULATION OF FLOW IN SINGULAR AND INTERCONNECTED CHANNELS, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

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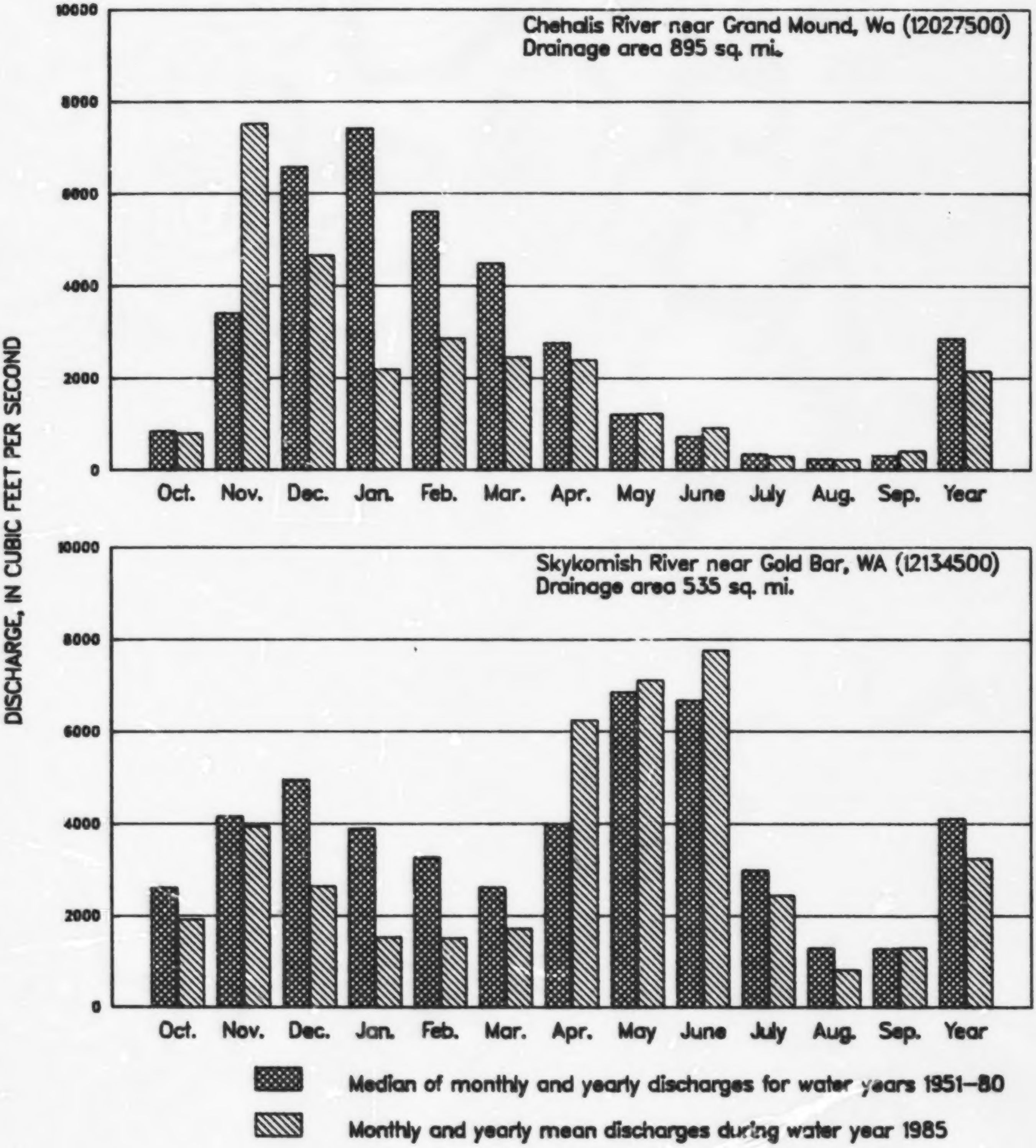

Figure 3a.--Discharge during 1985 water year compared with median discharge for period 1951-80 for two representative gaging stations in Western Washington.

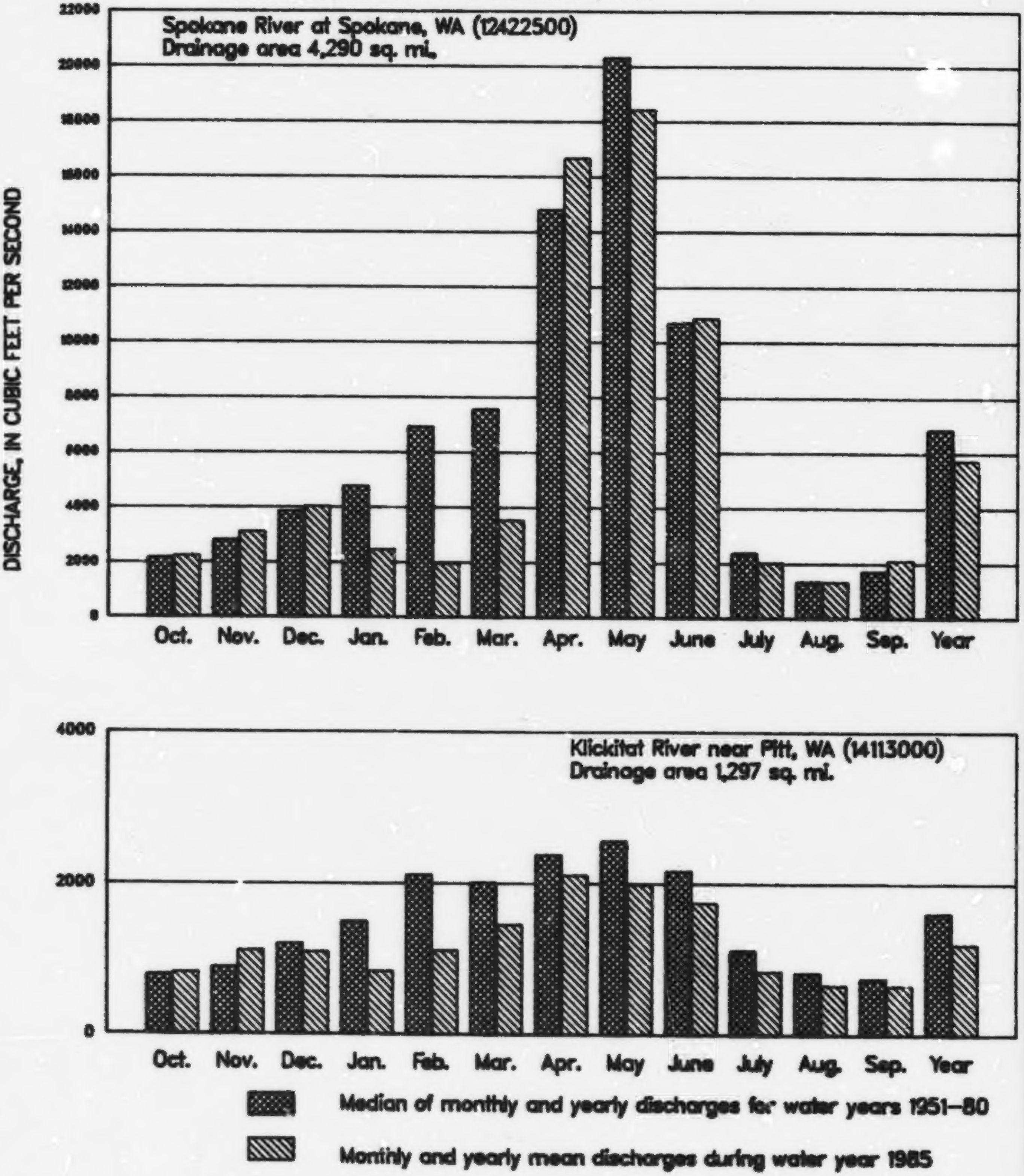

Figure 3b.--Discharge during 1985 water year compared with median discharge for period 1951-80 for two representative gaging stations in Eastern Washington.

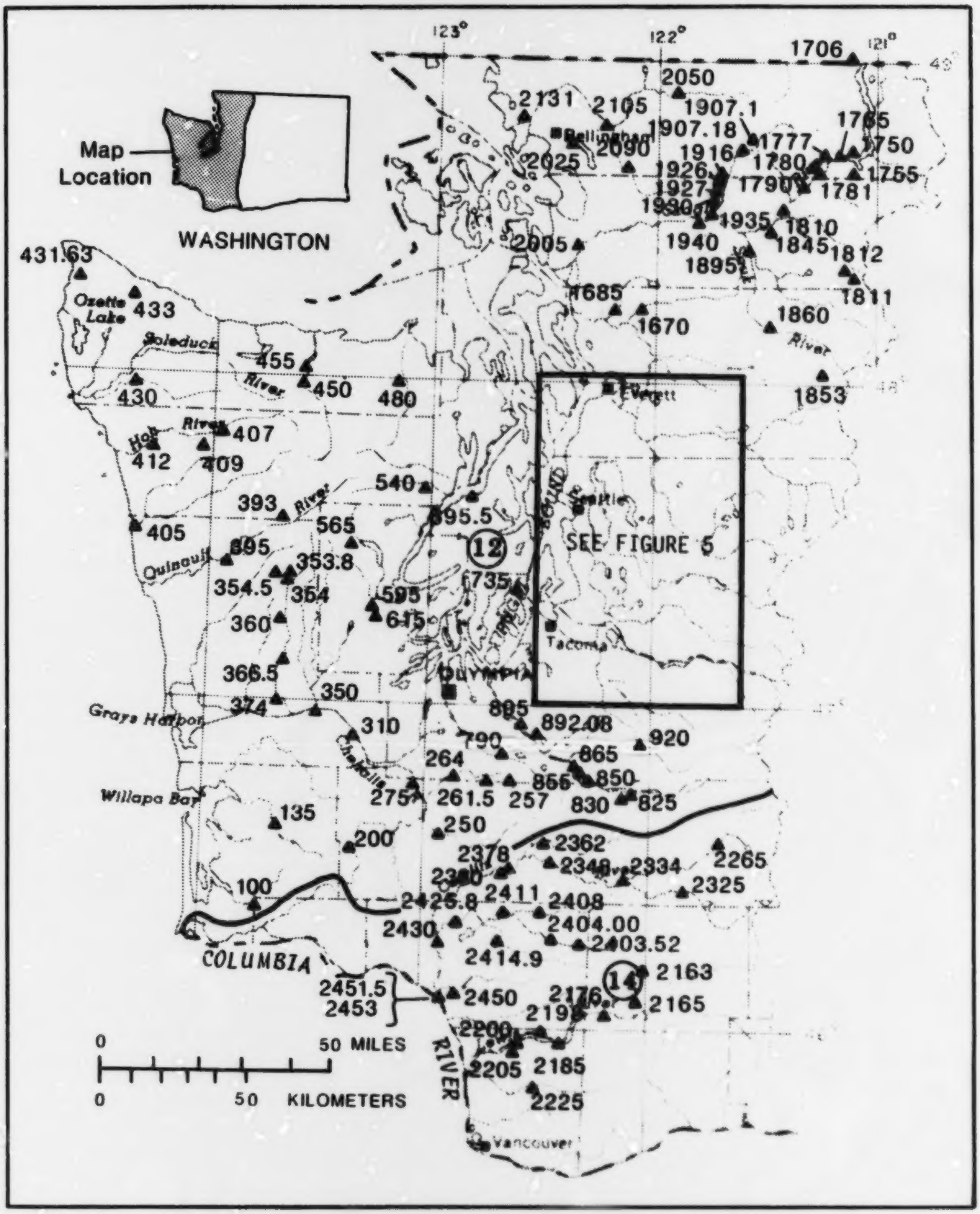
123°
122°
121°
49°
48°
Map Location
WASHINGTON
1706
2050
2131
2105
1907.1
1907.18
1765
1750
Bellingham
2025
2090
1916
1777
1780
1755
1926
1927
1790
1781
1930
1935
1810
2005
1940
1845
1812
1895
1811
431.63
433
Ozette Lake
1685
1670
1860
Soleduck
River
455
450
480
430
1853
Everett
Hoh
River
407
412
409
540
395.5
393
River
565
405
Seattle
Quinault
395
353.8
12
SEE FIGURE 5
354.5
354
595
735
615
360
Tacoma
366.5
OLYMPIA
SOUND
350
374
Grays Harbor
895
892.08
310
790
920
Chehalis
264
865
856
850
261.5
257
275
830
825
Willapa Bay
135
250
2362
200
2378
2348
2334
2265
2380
2325
100
2425.8
2411
2408
2404.00
2430
2403.52
COLUMBIA
2414.9
14
2163
2451.5
2453
2450
2176
2165
2195
2200
0
50 MILES
RIVER
2205
2185
0
50
KILOMETERS
2225
Vancouver

Figure 4a.--Map of Western Washington showing locations of gaging stations. Numbers shown are abbreviated versions of complete station numbers used in text. Part numbers are the large figures.

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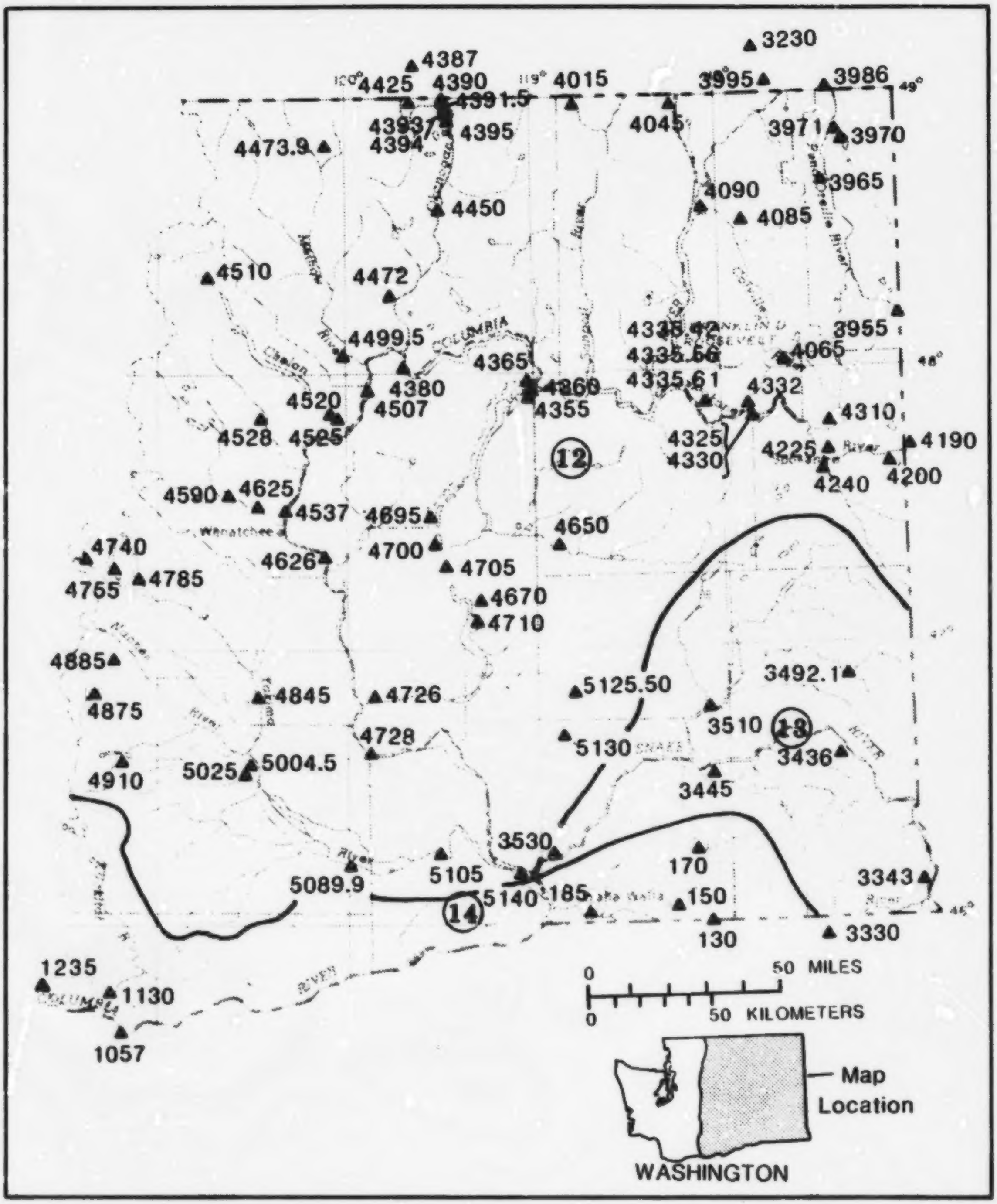
3230
4387
4425
4390
4391.5
4015
3995
3986
4393
4394
4395
4045
3971
3970
4473.9
3965
4090
4085
4450
4510
4472
4335.42
3955
4499.5
4335.56
4065
4365
4360
4335.61
4332
4380
4520
4507
4355
4310
4528
4525
12
4325
4330
4225
4190
4240
4200
4590
4625
4537
4695
4650
4740
4626
4700
4705
4755
4785
4670
4710
4885
5125.50
3492.1
4845
4726
4875
3510
18
4728
5130
3436
4910
5025
5004.5
3445
3530
170
5105
3343
5089.9
5140
185
150
14
130
3330
1235
1130
1057
COLUMBIA
Wenatchee
SNAKE
RIVER
0
50 MILES
0
50 KILOMETERS
Map Location
WASHINGTON

Figure 4b.--Map of Eastern Washington showing locations of gaging stations. Numbers shown are abbreviated versions of complete station numbers used in text. Part numbers are the large figures.

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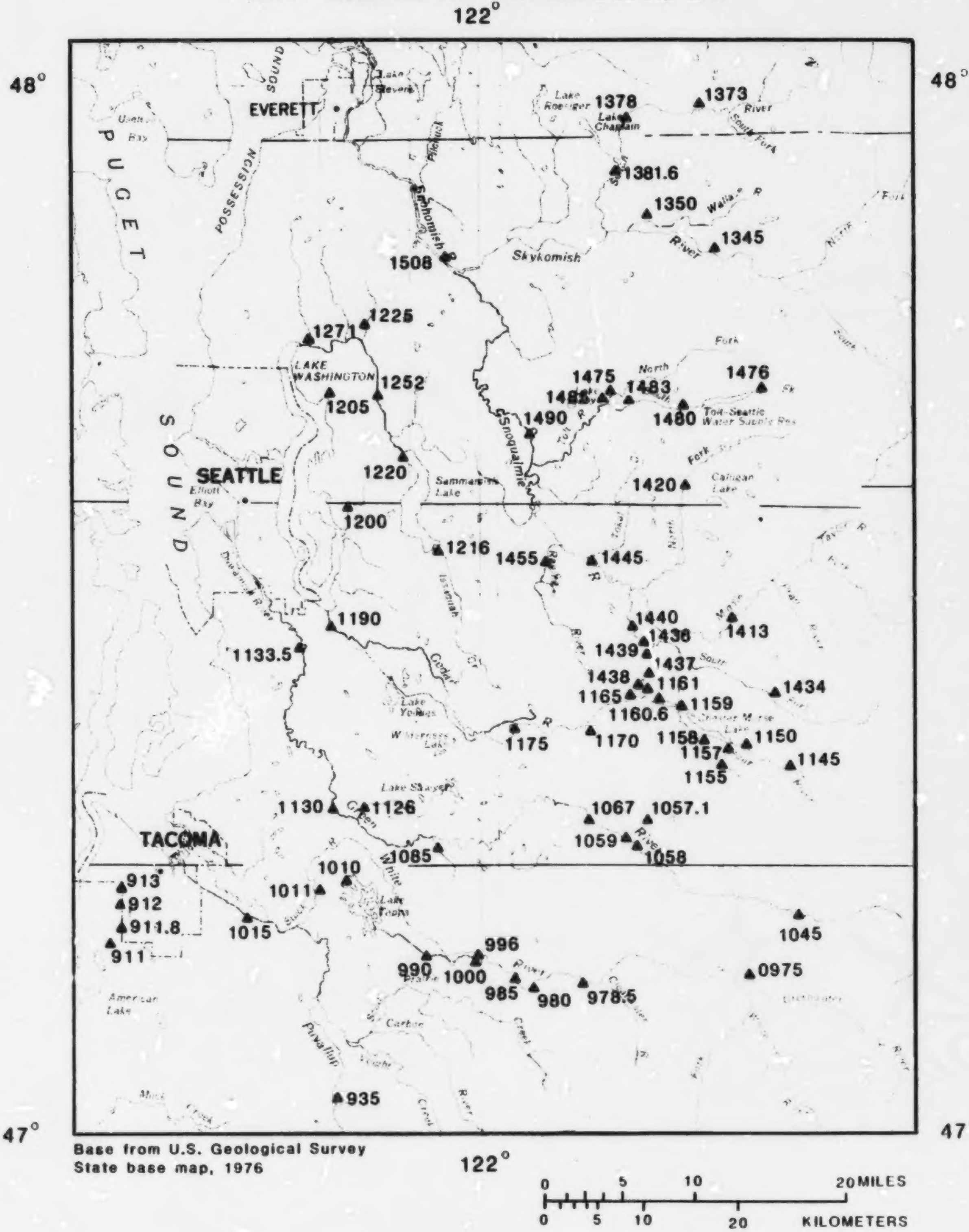
122°
48°
48°
EVERETT
SOUND
PUGET
POSSESSION SOUND
Lake Stevens
Lake Roesiger
1378
Lake Chaplain
1373
River
South Fork
1381.6
1350
Wallace R
1345
River
Skykomish
1508
Snohomish
Pilchuck
North Fork
1225
1271
LAKE WASHINGTON
1252
1205
1220
SOUND
SEATTLE
Elliott Bay
1200
Sammamish Lake
1475
North
1476
Fork
Fk
1488
1483
1490
1480
Tolt-Seattle Water Supply Res
Tolt R
Snoqualmie
Fork
1420
Calligan Lake
1216
1455
1445
R
Taylor R
1190
1133.5
Cedar
1440
1436
1413
1439
1437
1438
1161
1165
1159
1160.6
1434
Lake Youngs
R
Wilderness Lake
1175
1170
1158
1150
1157
1155
1145
Lake Sawyer
1130
1126
Green
1067
1057.1
1059
River
1058
TACOMA
1085
White
1010
913
1011
912
Lake Tapps
911.8
1015
1045
911
996
990
1000
0975
985
980
978.5
American Lake
Carbon
Puyallup
935
Creek
River
47°
47°
122°
0
5
10
20 MILES
0
5
10
20
KILOMETERS

Base from U.S. Geological Survey
State base map, 1976

Figure 5.--Map showing locations of gaging stations in the insert of Figure 4a.

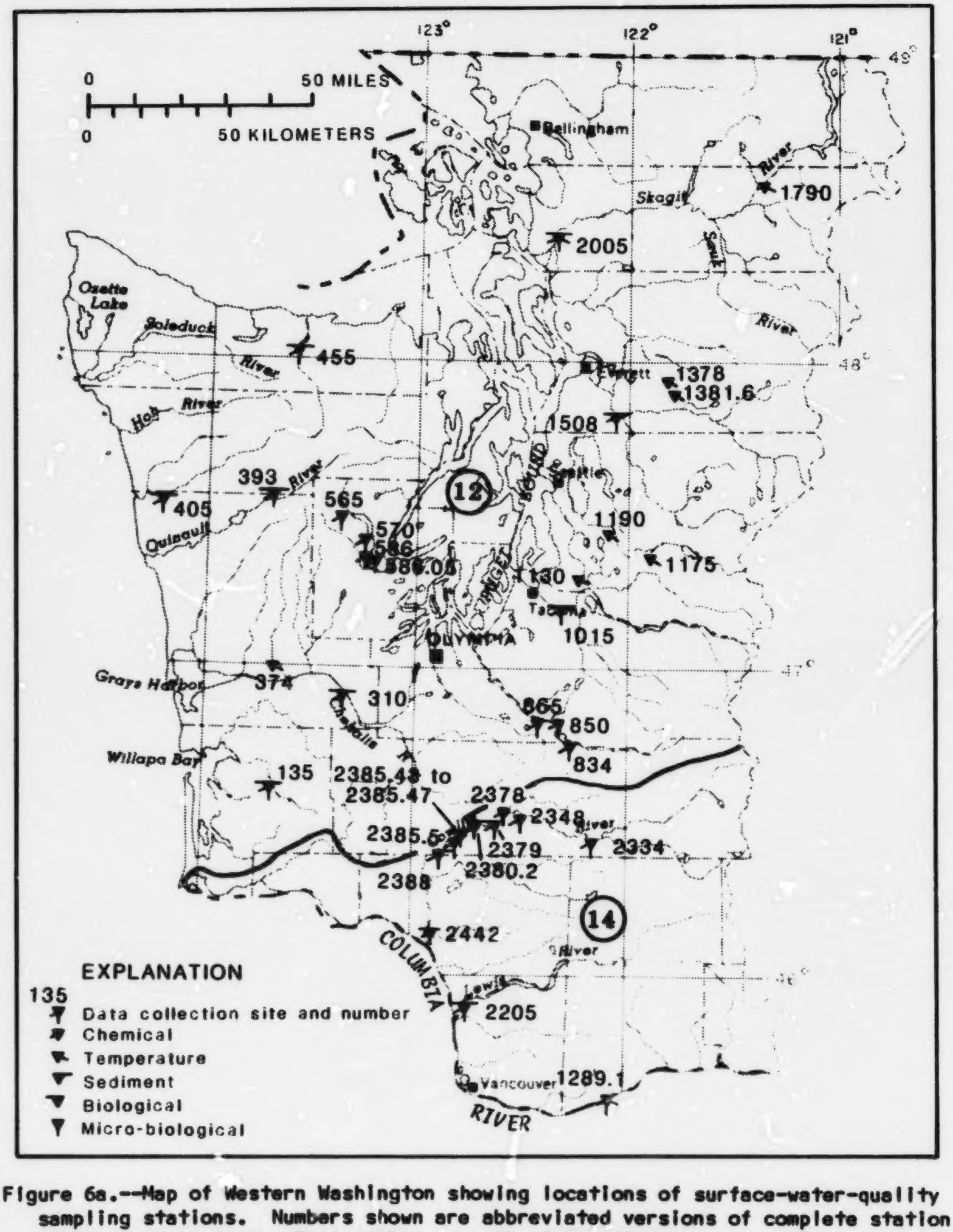
123°
122°
121°
49°
48°
47°
46°
0
50 MILES
0
50 KILOMETERS
Bellingham
Skagit
River
1790
2005
Sauk
River
Ozette Lake
Soleduck
River
455
Everett
1378
1381.6
Hoh
River
1508
SOUND
Seattle
393
River
405
565
12
Quinault
570
586
586.05
1190
1175
PUGET
130
Tacoma
1015
OLYMPIA
Grays Harbor
374
310
Chehalis
865
850
834
Willapa Bay
135
2385.43 to
2385.47
2378
2348
River
2385.5
2379
2334
2380.2
2388
14
2442
COLUMBIA
River
Lewis
2205
Vancouver
1289.1
RIVER
EXPLANATION
135
Data collection site and number
Chemical
Temperature
Sediment
Biological
Micro-biological

Figure 6a.--Map of Western Washington showing locations of surface-water-quality sampling stations. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

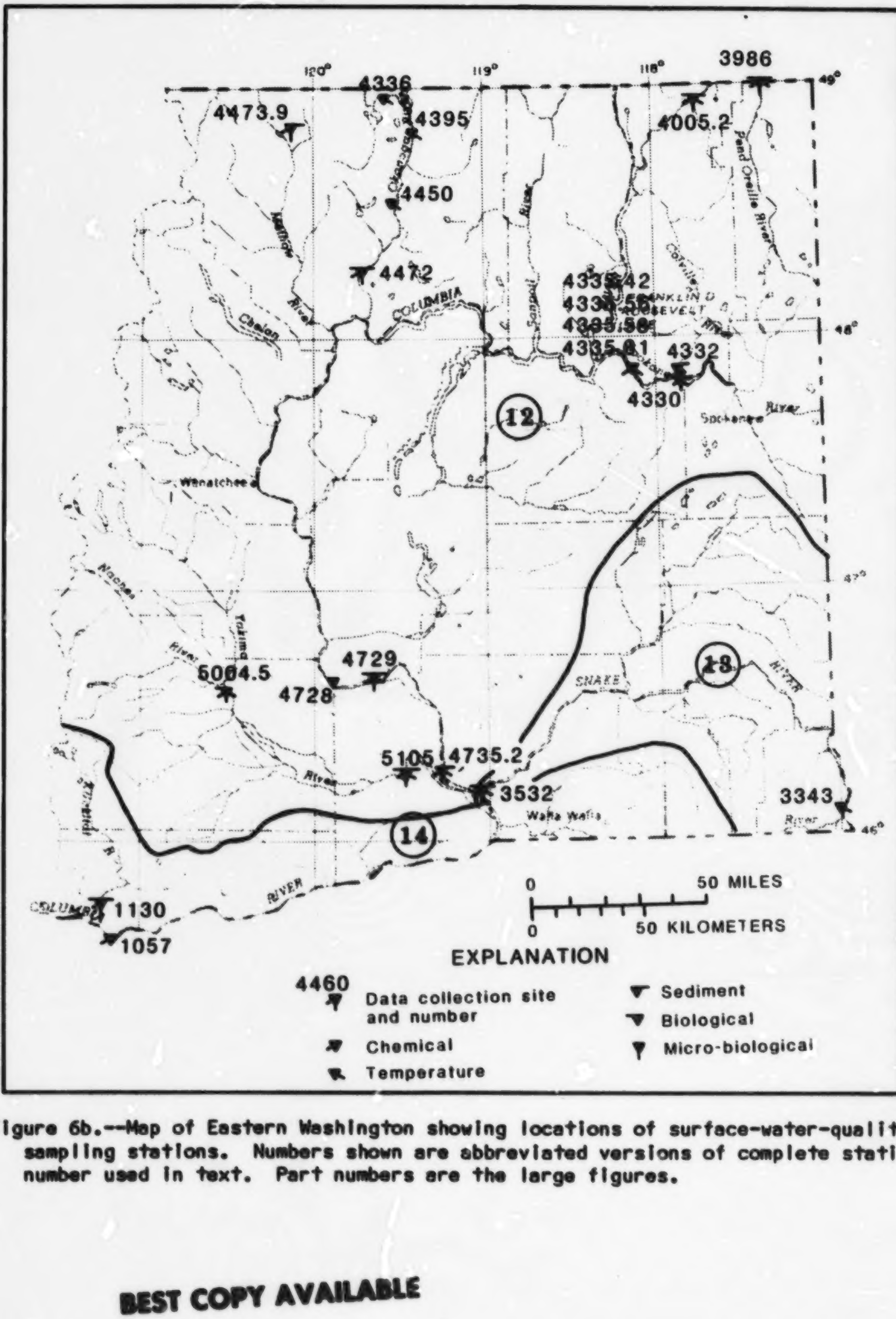
120°
119°
118°
49°
48°
47°
46°
3986
4336
4473.9
4395
4005.2
4450
4472
4335.42
4335.56
4335.58
4335.81
4332
4330
12
13
14
4729
5004.5
4728
5105
4735.2
3532
3343
1130
1057
COLUMBIA
Chelan
Okanogan
Methow
River
Sanpoil
Kettle
Colville
Pend Oreille River
FRANKLIN D. ROOSEVELT
Spokane
Spokane River
Wenatchee
Naches
Yakima
River
SNAKE
RIVER
Walla Walla
COLUMBIA
RIVER
0
50 MILES
0
50 KILOMETERS
EXPLANATION
4460
Data collection site and number
Chemical
Temperature
Sediment
Biological
Micro-biological

Figure 6b.--Map of Eastern Washington showing locations of surface-water-quality sampling stations. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

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REMARK CODES.--The following remark codes may appear with the water-quality data in this section:

PRINTED OUTPUT	REMARK
E	Estimated value based on values reported by Denver Central Laboratory
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptable range (non-ideal colony count)

12010000 NASELLE RIVER NEAR NASELLE, WA

LOCATION.--Lat 46°22'27", long 123°44'32", in SW¼SW¼ sec.1, T.10 N., R.9 W., Pacific County, Hydrologic Unit 17100106, on right bank 0.1 mi upstream from county highway bridge, 2.2 mi upstream from Salmon Creek, 3.4 mi east of Naselle, and at mile 17.4.

DRAINAGE AREA.--54.8 mi².

PERIOD OF RECORD.--May 1929 to current year.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1930(M), 1932-40(M), 1945-46(M).

GAGE.--Water-stage recorder. Elevation of gage is 24 ft, by barometer. Prior to Jan. 11, 1957, nonrecording gage and crest-stage gage at site 1,350 ft downstream at present datum. Jan. 11, 1957, to Dec. 31, 1961, nonrecording gage and crest-stage gage at site 1,200 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Records excellent. No regulation or diversion upstream from station. Chemical analyses October 1965 to September 1970, January to September 1973, November 1975 to June 1980. Water temperatures August 1963 to September 1973.

AVERAGE DISCHARGE.--56 years, 430 ft³/s, 106.56 in/yr, 311,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s Jan. 22, 1935, from flood marks at site then in use, from rating curve extended above 4,000 ft³/s on basis of slope-area measurement at gage height 15.2 ft; maximum gage height, 16.20 ft Dec. 2, 1977; minimum discharge, 18 ft³/s Aug. 30, 31, Sept. 1, 1970, Sept. 3, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	0100	*3,610	*10.44				

Minimum discharge, 28 ft³/s Aug. 26, 27, 29, 30, gage height, 3.69 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	830	1230	703	117	250	1050	466	106	79	71	34
2	36	2480	902	565	116	231	775	394	101	76	56	31
3	35	1650	702	472	101	225	614	376	98	73	47	30
4	43	1470	571	402	95	344	521	355	127	71	43	31
5	45	1100	481	351	96	409	433	319	109	69	40	48
6	41	862	409	311	114	364	372	283	150	68	39	108
7	49	786	371	279	205	324	325	252	814	67	44	100
8	52	709	406	251	163	294	289	245	454	64	52	91
9	77	707	332	231	163	268	258	228	309	62	45	58
10	413	1580	377	213	215	248	237	213	246	60	43	82
11	334	1850	341	199	1040	231	360	206	211	59	39	99
12	415	1280	561	188	954	215	365	191	191	57	37	118
13	561	917	611	178	599	202	293	187	177	56	36	132
14	446	703	1180	180	536	191	256	198	179	54	34	177
15	349	562	1370	178	530	181	234	176	177	53	34	149
16	271	469	919	159	437	171	221	162	152	53	34	130
17	219	418	697	151	374	162	202	153	139	53	33	229
18	187	584	556	145	324	155	210	147	128	51	32	162
19	169	721	469	141	393	149	205	140	121	49	32	126
20	171	856	411	141	398	153	203	135	117	47	32	105
21	149	675	378	132	381	193	195	130	112	46	32	94
22	136	552	535	126	427	278	271	123	107	46	31	86
23	127	794	632	120	386	758	740	118	103	46	31	78
24	124	794	587	116	400	665	549	119	100	47	30	72
25	280	773	508	112	368	537	462	119	96	45	29	68
26	321	692	452	109	330	520	470	112	93	43	29	65
27	380	2260	482	107	298	705	1150	107	89	41	28	61
28	471	3120	448	106	271	803	1030	108	87	40	29	58
29	417	2260	964	103	---	723	747	114	84	39	28	56
30	409	1800	1470	99	---	1610	573	105	83	42	34	53
31	377	---	938	97	---	1530	---	102	---	61	44	---
TOTAL	7140	34254	20290	6665	9831	13089	13610	6083	5060	1717	1168	2731
MEAN	230	1142	655	215	351	422	454	196	169	55.4	37.7	91.0
MAX	561	3120	1470	703	1040	1610	1150	466	814	79	71	229
MIN	35	418	332	97	95	149	195	102	83	39	28	30
CFSM	4.20	20.8	12.0	3.92	6.41	7.70	8.28	3.58	3.08	1.01	.69	1.66
IN.	4.85	23.25	13.77	4.52	6.67	8.89	9.24	4.13	3.43	1.17	.79	1.85
AC-FT	14160	67940	40250	13220	19500	25960	27000	12070	10040	3410	2320	5420

CAL YR 1984	TOTAL	161385	MEAN	441	MAX	3420	MIN	33	CFSM 8.05	IN.	109.55	AC-FT	320100
WTR YR 1985	TOTAL	121638	MEAN	333	MAX	3120	MIN	28	CFSM 6.08	IN.	82.57	AC-FT	241300

48

12013500 WILLAPA RIVER NEAR WILLAPA, WA
(National stream quality accounting network station)

LOCATION.--Lat 46°39'04", long 123°39'05", in SW¼SW¼ sec.35, T.14 N., R.8 W., Pacific County, Hydrologic Unit 17100106, on right bank 2,150 ft downstream from Mill Creek, 1.8 mi southeast of Willapa, and at mile 17.8.

DRAINAGE AREA.--130 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to October 1947, July 1948 to December 1954, water years 1955-56, 1958-59 (annual maximum), April 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3.57 ft above National Geodetic Vertical Datum of 1929. Aug. 26 to Oct. 16, 1947, water-stage recorder at site 2,060 ft upstream at different datum. July 28, 1948, to Dec. 2, 1954, water-stage recorder, water years 1955-56, 1958-59, nonrecording gage, and Apr. 1, 1961, to Apr. 14, 1974, water-stage recorder at site 2,000 ft upstream at datum 2.12 ft higher.

REMARKS.--Estimated daily discharges: June 9 to Aug. 21. Water-discharge records good except for estimated daily discharges, which are fair. Some diversion for domestic use and irrigation upstream from station. No regulation.

AVERAGE DISCHARGE.--30 years (water years 1949-1954, 1962-1985), 649 ft^3/s, 67.80 in/yr, 470,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft^3/s Feb. 22, 1949, Dec. 13, 1966, from rating curve extended above 7,300 ft^3/s; maximum gage height, 24.22 ft Feb. 22, 1949, site and datum then in use; minimum discharge, 13 ft^3/s Aug. 20, 1967; minimum gage height, 2.87 ft Aug. 18-21, 23-25, 31, Sept. 1, 1970, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 28	0200	*4,940	*14.85				

Minimum discharge, 24 ft^3/s Aug. 26, gage height, 3.06 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	765	2000	1290	175	344	1280	646	175	93	64	34
2	38	3150	1470	1010	184	327	1010	564	171	89	52	31
3	39	2280	1130	825	163	310	832	584	156	86	46	28
4	40	2230	896	698	147	407	704	569	174	83	42	29
5	57	1550	746	612	155	508	604	525	156	82	39	32
6	50	1180	635	545	164	439	531	466	187	81	37	79
7	48	1190	568	487	323	397	470	422	1120	80	38	99
8	49	1030	590	439	268	367	426	399	786	77	72	107
9	69	1020	497	404	275	348	391	382	480	74	57	61
10	449	2310	570	370	438	328	361	354	380	71	47	65
11	417	3200	496	343	1700	310	478	348	315	68	41	109
12	365	2140	692	323	1820	296	512	319	275	66	38	111
13	679	1520	731	305	1100	281	408	304	250	64	35	142
14	558	1150	1360	298	885	268	364	331	235	62	33	136
15	445	923	1980	301	837	258	335	297	215	60	32	142
16	330	769	1340	274	679	244	316	274	195	60	31	106
17	266	665	1030	260	581	233	295	252	188	59	30	214
18	221	880	827	246	509	223	297	235	164	57	29	178
19	193	994	696	237	552	214	321	224	151	55	29	122
20	187	1130	629	237	603	215	319	214	144	53	30	98
21	169	932	586	222	535	295	297	207	137	52	30	84
22	150	800	676	211	539	443	344	194	130	51	30	75
23	139	1090	736	203	501	1350	1170	189	126	51	28	68
24	134	1140	698	196	502	1430	1010	194	120	51	28	63
25	225	1030	626	189	464	1130	860	189	116	50	26	58
26	341	891	579	182	426	1020	768	178	112	49	25	55
27	446	2720	666	179	390	1310	1230	169	108	47	25	51
28	548	4530	696	186	365	1350	1220	170	103	46	25	48
29	482	3440	1620	174	---	1100	931	196	99	45	26	46
30	461	2900	3100	166	---	1680	765	172	96	42	26	45
31	465	---	1820	163	---	1680	---	161	---	43	36	---
TOTAL	8098	49549	30686	11575	15280	19105	18849	9728	7064	1947	1127	2516
MEAN	261	1652	990	373	546	616	628	314	235	62.8	36.4	83.9
MAX	679	4530	3100	1290	1820	1680	1280	646	1120	93	72	214
MIN	38	665	496	163	147	214	295	161	96	42	25	28
CFSM	2.01	12.7	7.62	2.87	4.20	4.74	4.83	2.42	1.81	.48	.28	.65
IN.	2.32	14.18	8.78	3.31	4.37	5.47	5.39	2.78	2.02	.56	.32	.72
AC-FT	16060	98280	60870	22960	30310	37890	37390	19300	14010	3860	2240	4990

CAL YR 1984 TOTAL 234202 MEAN 640 MAX 4530 MIN 32 CFSM 4.92 IN. 67.02 AC-FT 464500
WTR YR 1985 TOTAL 175524 MEAN 481 MAX 4530 MIN 25 CFSM 3.70 IN. 50.23 AC-FT 348200

12013500 WILLAPA RIVER NEAR WILLAPA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966-1973, 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 16...	0930	780	65	7.30	6.5	3.0	12.4	100	70	42	17
MAR 21...	1115	312	64	7.60	7.0	1.9	12.3	100	190	25	18
MAY 23...	1200	191	65	7.40	15.0	2.5	9.6	95	180	30	18
AUG 21...	1335	30	77	7.40	16.0	1.5	9.9	99	73	60	22

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 16...	5	4.5	1.4	4.9	37	0.5	0.7	12	4.8	4.8	<0.1
MAR 21...	1	4.7	1.5	5.4	39	0.6	0.6	17	4.9	5.2	<0.1
MAY 23...	--	4.9	1.5	5.4	38	0.6	0.7	22	5.3	4.6	<0.1
AUG 21...	--	5.6	2.0	6.5	38	0.6	0.9	30	5.8	5.5	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV 16...	14	52	42	0.07	110	0.93	0.02	0.5	0.01	0.01	<0.01
MAR 21...	13	46	46	0.06	39	0.54	<0.01	0.4	0.02	0.01	<0.01
MAY 23...	14	43	50	0.06	22	0.42	0.12	0.3	0.02	<0.01	<0.01
AUG 21...	13	54	58	0.07	4.4	0.23	0.04	0.4	0.02	0.02	<0.01

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WILLAPA RIVER BASIN

12013500 WILLAPA RIVER NEAR WILLAPA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV											
16...	<10	<1	12	<0	<1	<1	<3	2	82	3	<4
MAR											
21...	20	<1	12	<0.5	<1	<1	<3	5	110	<1	4
MAY											
23...	10	<1	8	<0.5	<1	<1	<3	3	120	<1	<4
AUG											
21...	20	<1	12	<0.5	<1	1	<3	4	250	3	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV											
16...	11	<0.1	<10	2	<1	<1	30	<6	<3	9	19
MAR											
21...	9	<0.1	<10	<1	<1	<1	30	<6	5	3	2.5
MAY											
23...	8	<0.1	<10	2	<1	1	31	<6	17	4	2.1
AUG											
21...	12	<0.1	<10	6	<1	<1	36	<6	16	7	0.57

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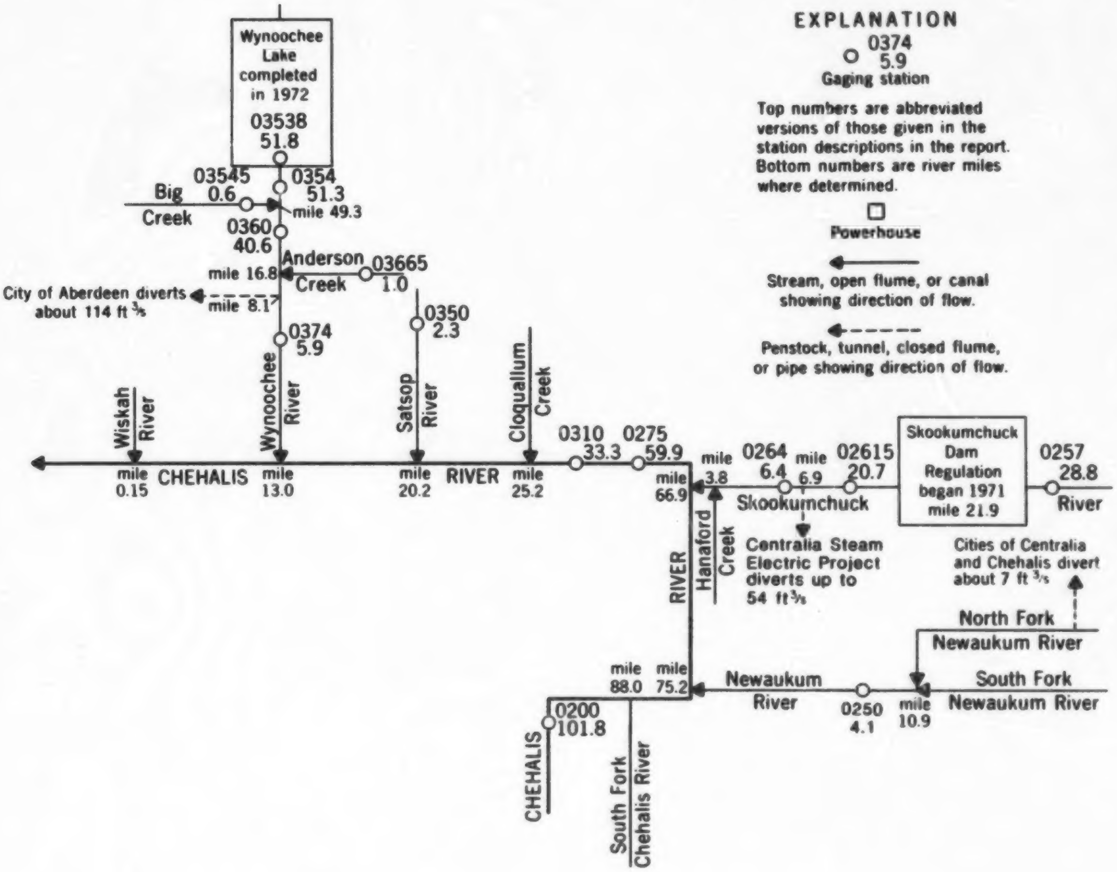

EXPLANATION
0374
5.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Wynoochee Lake completed in 1972
03538
51.8
03545
0.6
Big Creek
0354
51.3
mile 49.3
0360
40.6
Anderson Creek
03665
1.0
mile 16.8
City of Aberdeen diverts about 114 ft³/s
mile 8.1
0374
5.9
0350
2.3
Wiskah River
Wynoochee River
Satsop River
Cloquallum Creek
mile 0.15
CHEHALIS
mile 13.0
mile 20.2
RIVER
mile 25.2
0310
33.3
0275
59.9
mile 66.9
mile 3.8
0264
6.4
mile 6.9
02615
20.7
Skookumchuck
Skookumchuck Dam Regulation began 1971 mile 21.9
0257
28.8
River
Hanaford Creek
RIVER
Centralia Steam Electric Project diverts up to 54 ft³/s
Cities of Centralia and Chehalis divert about 7 ft³/s
North Fork Newaukum River
South Fork Newaukum River
mile 10.9
0250
4.1
Newaukum River
mile 88.0
mile 75.2
0200
101.8
CHEHALIS
South Fork Chehalis River

Figure 7.--Gaging stations in Chehalis River basin.

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12020000 CHEHALIS RIVER NEAR DOTY, WA

LOCATION.--Lat 46°37'03", long 123°16'35", in NE¼NW¼ sec.14, T.13 N., R.5 W., Lewis County, Hydrologic Unit 17100103, on right bank 1.3 mi south of Doty, 1.6 mi upstream from Elk Creek, 3.4 mi north of Pe Ell, and at mile 101.8.

DRAINAGE AREA.--113 mi².

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1316: 1943(M). WSP 1446: 1946(M). WDR-WA-72-1: 1945(M).

GAGE.--Water-stage recorder. Datum of gage is 302.1 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Oct. 1, 1961, nonrecording gage and crest-stage gage at site 100 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 8-30, Nov. 10-20. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Chemical analyses July 1959 to September 1970, sediment records October 1961 to December 1964 (partial-record station).

AVERAGE DISCHARGE.--46 years, 575 ft³/s, 69.10 in/yr, 416,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s Jan. 20, 1972, gage height, 18.36 ft, from rating curve extended above 7,400 ft³/s on basis of slope-area measurement of peak flow; minimum, 18 ft³/s Oct. 14, 1952, Aug. 25-28, 1958, Sept. 4, 5, 1972; minimum gage height, 0.69 ft Aug. 18, 19, 1977, Aug. 24-27, Sept. 3, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 2	0900	*4,750	*7.62				

Minimum discharge, 32 ft³/s Aug. 26-28, gage height, 0.84 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	962	1760	1100	171	402	1210	501	141	85	76	39
2	37	3850	1280	841	168	368	941	437	136	82	64	36
3	36	2910	969	686	149	338	765	450	127	78	53	34
4	47	3300	770	588	141	358	626	472	131	74	49	34
5	65	1950	633	524	146	378	530	483	125	72	46	35
6	51	1300	537	485	151	350	465	428	160	72	44	52
7	49	1310	475	451	240	323	421	384	956	72	46	82
8	48	1100	440	417	200	303	387	357	644	69	80	63
9	62	1120	390	385	191	288	359	340	432	65	64	51
10	480	2180	405	355	279	273	338	313	335	62	54	87
11	400	3900	357	329	1330	259	460	312	279	62	48	114
12	450	2690	484	307	1550	248	470	286	243	60	45	87
13	540	1800	584	288	886	238	388	269	222	57	42	120
14	450	1300	1380	289	746	227	346	285	209	57	40	121
15	390	950	1800	316	935	220	317	260	202	55	39	107
16	300	760	1100	297	743	213	296	243	173	54	37	90
17	250	640	808	289	601	211	271	225	158	54	36	154
18	220	1000	634	280	511	207	263	213	144	53	35	148
19	200	1200	532	272	529	202	277	201	132	50	36	107
20	190	1230	472	274	631	208	278	193	126	47	36	88
21	170	971	430	265	619	272	262	185	119	46	37	76
22	150	773	566	251	736	355	322	173	114	46	35	69
23	140	918	715	235	736	1500	994	168	111	46	35	64
24	200	970	702	220	746	1520	864	167	107	46	34	59
25	300	904	603	208	690	986	726	162	104	45	34	55
26	420	785	535	197	566	821	639	152	99	43	32	53
27	500	2880	585	189	483	853	1030	143	95	42	32	50
28	540	4170	566	184	430	809	1100	142	95	40	33	48
29	450	3140	1300	176	---	735	783	147	90	39	33	46
30	430	2590	2520	164	---	1360	608	136	90	40	33	45
31	441	---	1590	158	---	1630	---	131	---	53	41	---
TOTAL	8042	53553	25922	11020	15304	16455	16736	8363	6099	1766	1349	2214
MEAN	259	1785	836	355	547	531	558	270	203	57.0	43.5	73.8
MAX	540	4170	2520	1100	1550	1630	1210	501	956	85	80	154
MIN	36	640	357	158	141	202	262	131	90	39	32	34
CFSM	2.29	15.8	7.40	3.14	4.84	4.70	4.94	2.39	1.80	.50	.38	.65
IN.	2.65	17.63	8.53	3.63	5.04	5.42	5.51	2.75	2.01	.58	.44	.73
AC-FT	15950	106200	51420	21860	30360	32640	33200	16590	12100	3500	2680	4390

CAL YR 1984	TOTAL	214539	MEAN	586	MAX	4170	MIN	35	CFSM	5.19	IN.	70.63	AC-FT	425500
WTR YR 1985	TOTAL	166823	MEAN	457	MAX	4170	MIN	32	CFSM	4.04	IN.	54.92	AC-FT	330900

12025000 NEWAUKUM RIVER NEAR CHEHALIS, WA

LOCATION.--Lat 46°37'13", long 122°56'38", in SW¼SW¼ sec.9, T.13 N., R.2 W., Lewis County, Hydrologic Unit 17100103, on left bank at highway bridge 3.0 mi southeast of Chehalis, and at mile 4.1.

DRAINAGE AREA.--155 mi².

PERIOD OF RECORD.--March 1929 to September 1931, July 1942 to September 1981, October 1982 to current year.

REVISED RECORDS.--WSP 1012: 1943. WSP 1316: 1929-30(M), 1960(M). WSP 1716: Drainage area. WSP 1932: 1931(M), 1945-49, 1954(M), 1956(P), 1958(M), 1959-60.

GAGE.--Water-stage recorder. Elevation of gage is 190 ft, from topographic map. Prior to Oct. 1, 1929, nonrecording gage at same site at datum 1.0 ft higher. Oct. 1, 1929, to July 5, 1962, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Estimated daily discharges: Feb. 3-5. Records good. Cities of Chehalis and Centralia divert about 7 ft³/s from North Fork Newaukum River for municipal use. No regulation upstream from station.

AVERAGE DISCHARGE.--44 years (water years, 1930-31, 1943-81, 1983-85), 501 ft³/s, 363,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft³/s Dec. 2, 1977, gage height, 12.49 ft; maximum gage height, 13.62 ft Dec. 9, 1953; minimum discharge, 12 ft³/s Sept. 13, 14, 1949, Aug. 29, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 4	1000	*3,630	*7.00				

Minimum discharge, 33 ft³/s Aug. 26-28, gage height, 0.85 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	245	1430	902	183	457	893	421	142	83	78	48
2	40	1310	1070	731	182	412	771	372	204	78	75	42
3	43	1550	856	628	160	372	675	400	174	76	59	39
4	45	2860	707	552	140	482	580	407	150	75	53	39
5	53	1490	601	502	130	527	505	397	137	73	53	40
6	51	937	520	473	167	479	452	336	144	68	49	88
7	46	899	476	448	316	420	417	293	781	68	49	99
8	46	754	451	422	292	375	390	269	645	65	99	71
9	75	896	412	389	289	345	372	252	410	63	75	57
10	159	1240	439	359	423	320	358	238	298	58	62	94
11	242	2130	406	329	1260	295	349	260	234	56	56	110
12	147	1660	563	306	1520	277	343	225	198	55	50	70
13	155	1400	559	289	878	261	303	211	177	58	47	69
14	209	1250	652	293	695	249	279	297	176	58	42	76
15	198	930	1060	325	789	238	266	244	199	56	41	90
16	142	741	788	303	727	232	261	216	159	56	39	80
17	113	622	709	294	606	228	243	203	140	55	37	158
18	95	656	583	288	515	222	236	190	130	53	35	155
19	85	672	488	278	550	214	237	178	120	50	36	103
20	82	800	438	295	668	241	233	169	113	48	37	82
21	76	699	409	279	617	351	216	162	111	46	38	72
22	70	593	672	258	821	473	236	152	105	45	38	67
23	70	786	908	243	813	984	497	144	102	45	36	62
24	73	978	903	230	801	1160	486	140	98	50	35	58
25	104	803	772	218	781	1000	486	142	95	50	34	54
26	239	673	677	208	655	885	456	137	93	46	34	51
27	273	1670	760	200	558	909	753	131	91	42	36	49
28	369	2930	752	197	491	726	798	128	88	42	34	47
29	319	2250	1090	192	---	613	617	142	86	40	34	45
30	246	2060	1910	181	---	748	498	145	87	40	36	44
31	251	---	1230	176	---	1080	---	132	---	47	51	---
TOTAL	4156	36484	23291	10788	16027	15575	13206	7133	5687	1745	1478	2159
MEAN	134	1216	751	348	572	502	440	230	190	56.3	47.7	72.0
MAX	369	2930	1910	902	1520	1160	893	421	781	83	99	158
MIN	40	245	406	176	130	214	216	128	86	40	34	39
AC-FT	8240	72370	46200	21400	31790	30890	26190	14150	11280	3460	2930	4280

CAL YR 1984	TOTAL	200657	MEAN	548	MAX	5580	MIN	40	AC-FT	398000
WTR YR 1985	TOTAL	137729	MEAN	377	MAX	2930	MIN	34	AC-FT	273200

12025700 SKOOKUMCHUCK RIVER NEAR VAIL, WA

LOCATION.--Lat 46°46'22", long 122°35'34", in SW¼NW¼ sec.20, T.15 N., R.2 E., Thurston County, Hydrologic Unit 17100103, on right bank about 150 ft downstream from logging bridge, 0.4 mi downstream from Hospital Creek, 5.8 mi southeast of Vail, and at mile 28.8.

DRAINAGE AREA.--40.0 mi².

PERIOD OF RECORD.--October 1967 to current year.

REVISED RECORDS.--WDR WA-75-1: 1974.

GAGE.--Water-stage recorder. Elevation of gage is 710 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent except those above 1,000 ft³/s, which are good. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--18 years, 202 ft³/s, 68.58 in/yr, 146,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft³/s Jan. 20, 1972, gage height, 10.93 ft; minimum, 18 ft³/s part or all of each day Aug. 22-24, 26-31, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 4	0500	*1,220	*6.49				

Minimum discharge, 20 ft³/s part of each day Aug. 26-30, Sept. 2-4, gage height, 3.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	231	453	256	74	165	476	206	65	46	39	22
2	22	854	356	212	69	149	413	196	67	44	30	21
3	21	859	287	188	65	138	361	215	63	42	28	21
4	24	1010	242	181	64	154	288	200	66	41	28	21
5	24	565	208	184	65	158	243	186	61	41	27	27
6	22	375	183	184	69	146	218	169	102	40	26	78
7	22	394	173	183	78	134	212	152	400	39	36	53
8	24	344	180	175	67	125	210	140	253	38	52	36
9	36	378	168	161	64	118	213	129	176	37	33	32
10	125	499	167	147	74	113	215	130	140	36	30	55
11	109	783	148	135	296	108	216	122	119	36	28	41
12	78	609	158	127	313	104	203	113	106	35	27	39
13	123	538	147	121	197	100	177	112	97	35	26	53
14	119	470	260	136	212	98	162	118	98	34	25	55
15	95	361	326	148	333	94	152	108	90	33	25	55
16	74	282	250	140	264	94	146	108	80	33	24	51
17	61	237	206	148	209	99	128	110	73	33	24	76
18	52	283	173	145	173	100	127	103	69	32	23	58
19	47	340	155	136	171	100	118	96	66	31	24	48
20	43	402	143	132	162	122	110	90	63	30	24	42
21	39	344	139	125	160	131	103	85	60	30	23	38
22	37	283	240	117	205	154	126	83	58	29	22	36
23	36	334	326	110	218	504	264	82	57	29	22	33
24	35	345	294	104	284	477	234	78	55	30	21	31
25	81	291	250	98	272	322	209	76	53	29	21	30
26	122	244	221	93	227	266	204	70	52	28	21	28
27	140	578	218	89	193	239	380	67	50	28	21	28
28	203	944	191	84	173	206	394	67	49	27	21	27
29	155	773	245	80	---	183	298	71	48	27	21	26
30	140	618	430	76	---	364	239	68	47	27	23	25
31	124	---	334	73	---	529	---	64	---	29	25	---
TOTAL	2255	14568	7271	4288	4751	5794	6839	3614	2783	1049	820	1186
MEAN	72.7	486	235	138	170	187	228	117	92.8	33.8	26.5	39.5
MAX	203	1010	453	256	333	529	476	215	400	46	52	78
MIN	21	231	139	73	64	94	103	64	47	27	21	21
CFSM	1.82	12.1	5.87	3.45	4.25	4.67	5.70	2.92	2.32	.84	.66	.99
IN.	2.10	13.55	6.76	3.99	4.42	5.39	6.36	3.36	2.59	.98	.76	1.10
AC-FT	4470	28900	14420	8510	9420	11490	13570	7170	5520	2080	1630	2350

CAL YR 1984 TOTAL 73573 MEAN 201 MAX 1290 MIN 21 CFSM 5.02 IN. 68.42 AC-FT 145900
WTR YR 1985 TOTAL 55218 MEAN 151 MAX 1010 MIN 21 CFSM 3.77 IN. 51.35 AC-FT 109500

BEST COPY AVAILABLE

12026150 SKOOKUMCHUCK RIVER BELOW BLOODY RUN CREEK, NEAR CENTRALIA, WA

LOCATION.--Lat 46°47'25", long 122°44'03", in NW¼NW¼ sec.18, T.15 N., R.1 E., Thurston County, Hydrologic Unit 17100103, on right bank 0.7 mi downstream from Bloody Run Creek, 1.2 mi downstream from Skookumchuck Dam, 12 mi northeast of Centralia, and at mile 20.7.

DRAINAGE AREA.--65.9 mi². Prior to August 1969, 61.7 mi².

PERIOD OF RECORD.--April 1929 to November 1933, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316 and 1736. Published as "near Centralia" (12026000) prior to August 1969.

GAGE.--Water-stage recorder. Datum of gage is 317.34 ft above National Geodetic Vertical Datum of 1929. Apr. 1, 1929, to Sept. 30, 1931, and Feb. 1, 1932, to Dec. 6, 1933, nonrecording gage at site 1.1 mi upstream at different datum. Oct. 9, 1939, to July 31, 1969 at site 1.3 mi upstream at datum 301.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: June 4-25. Records good except for estimated daily discharges, which are fair. Flow regulated by Skookumchuck Dam since January 1971. No diversions upstream from station.

AVERAGE DISCHARGE.--50 years (water years 1930-33, 1940-85), 253 ft³/s, 52.14 in/yr, 183,300 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,710 ft³/s Dec. 9, 1953, gage height, 48.59 ft, site and datum in use; minimum, 12 ft³/s May 28, 1970, caused by pumping during dam construction.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 29	0500	*1,210	*7.87				

Minimum discharge, 73 ft³/s Aug. 31, Sept. 1, gage height, 4.71 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	191	746	332	116	111	554	261	99	105	82	90
2	140	262	544	324	115	115	488	233	99	106	82	117
3	143	282	439	319	114	114	425	245	99	106	81	131
4	143	292	387	314	114	116	355	240	96	106	80	134
5	149	278	373	311	114	117	288	228	93	104	80	133
6	163	272	360	308	114	117	258	204	100	104	80	133
7	160	267	344	306	115	116	242	179	190	104	81	130
8	166	267	335	303	115	116	235	170	210	104	81	128
9	172	274	329	301	116	121	231	152	230	103	80	129
10	175	301	324	298	119	132	233	227	200	103	80	131
11	170	330	319	295	140	132	230	246	170	103	79	126
12	167	326	316	292	143	129	231	193	150	103	80	126
13	175	349	313	290	111	125	204	121	140	103	80	134
14	174	359	317	288	99	120	182	105	136	102	80	139
15	174	340	328	285	105	112	167	104	131	102	79	139
16	173	333	325	283	102	106	152	103	123	101	79	139
17	171	327	318	282	97	108	147	102	115	101	79	141
18	169	323	312	280	94	100	137	101	110	101	79	140
19	167	325	308	278	93	98	132	101	108	100	79	139
20	167	337	304	277	93	107	125	101	106	100	80	139
21	166	341	302	274	96	134	118	104	106	101	80	140
22	165	338	311	272	98	166	121	107	108	104	80	140
23	165	341	316	271	97	401	234	107	108	104	78	138
24	165	353	314	269	99	756	286	107	107	97	78	137
25	170	348	312	269	100	533	273	107	107	90	76	139
26	176	340	309	268	99	419	250	107	107	90	76	138
27	175	383	313	266	102	367	361	107	106	90	76	135
28	177	632	313	266	104	311	477	107	106	89	76	135
29	174	1190	331	259	---	264	403	107	106	89	76	136
30	174	1050	362	203	---	300	315	106	105	89	75	135
31	173	---	347	137	---	565	---	101	---	87	74	---
TOTAL	5138	11351	10871	8720	3024	6528	7864	4583	3771	3091	2446	3991
MEAN	166	378	351	281	108	211	262	148	126	99.7	78.9	133
MAX	177	1190	746	332	143	756	554	261	230	106	82	141
MIN	140	191	302	137	93	98	118	101	93	87	74	90
AC-FT	10190	22510	21560	17300	6000	12950	15600	9090	7480	6130	4850	7920

CAL YR 1984 TOTAL 98992 MEAN 270 MAX 1190 MIN 94 AC-FT 196400
WTR YR 1985 TOTAL 71378 MEAN 196 MAX 1190 MIN 74 AC-FT 141600

12026400 SKOOKUMCHUCK RIVER NEAR BUCODA, WA

LOCATION.--Lat 46°46'20", long 122°55'23", in SW¼NW¼ sec.22, T.15 N., R.2 W., Thurston County, Hydrologic Unit 17100103, on left bank 100 ft downstream from bridge on State Highway 507, 3.3 mi southwest of Bucoda, and at mile 6.4.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--December 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 194.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 27 to Nov. 20. Records good except for estimated daily discharges, which are poor. Flow regulated by Skookumchuck Dam since January 1971. An average of 30 ft³/s is diverted at point 0.5 mi upstream for consumptive use at Centralia Steam Electric Project. During peak demand months, up to 54 ft³/s may be diverted for periods of one day or less. Other minor diversions for domestic use and irrigation upstream from station. Water temperatures October 1968 to September 1971; sediment records July 1968 to September 1971.

AVERAGE DISCHARGE.--14 years (water years 1972-85), 360 ft³/s, 260,800 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,190 ft³/s Jan. 21, 1972, gage height, 16.82 ft; minimum, 21 ft³/s Aug. 15, 16, 18, 19, 20, 1970, gage height, 3.85 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,750 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 29	0800	*1,620	*8.70				

Minimum discharge, 50 ft³/s Aug. 21, 23-30, gage height, 4.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	210	1060	553	133	160	660	320	110	102	65	58
2	122	275	779	499	133	167	580	280	114	90	63	91
3	121	350	627	470	128	161	505	280	113	89	62	107
4	122	410	532	446	131	170	431	281	109	88	61	114
5	122	385	464	431	126	180	358	269	105	89	61	114
6	140	370	439	419	126	182	321	246	113	92	60	122
7	140	355	421	387	145	173	302	222	232	89	61	121
8	143	350	414	354	148	161	291	205	254	84	64	112
9	146	370	409	349	161	156	280	194	283	84	62	109
10	169	410	393	351	205	165	275	217	235	83	60	117
11	186	460	393	352	316	172	272	276	189	85	58	113
12	164	460	411	339	460	162	277	239	158	85	58	107
13	168	630	408	329	308	159	261	163	142	85	58	112
14	177	840	417	329	237	153	234	141	135	84	57	121
15	169	570	531	327	263	145	218	133	131	84	56	120
16	162	485	484	322	241	127	212	128	122	83	55	119
17	157	450	461	319	205	128	203	123	114	84	53	120
18	150	430	427	316	178	131	184	120	108	91	53	119
19	148	425	403	314	175	115	180	119	105	84	54	118
20	158	512	390	314	198	121	171	118	104	71	55	116
21	162	477	379	309	181	160	163	119	104	71	54	116
22	155	440	442	305	183	198	160	122	106	73	52	116
23	150	456	496	302	171	367	262	122	106	80	52	117
24	149	543	482	297	176	892	350	120	106	79	52	114
25	150	503	458	294	184	727	350	120	100	71	50	112
26	167	462	440	288	172	574	323	120	88	69	50	112
27	191	716	466	285	163	525	474	119	90	67	50	111
28	190	1150	474	285	162	441	607	119	97	67	51	109
29	190	1560	542	280	---	366	502	121	97	68	51	109
30	185	1440	848	242	---	367	388	121	97	67	52	109
31	185	---	684	168	---	640	---	115	---	69	55	---
TOTAL	4860	16494	15574	10575	5409	8345	9794	5392	3967	2507	1745	3355
MEAN	157	550	502	341	193	269	326	174	132	80.9	56.3	112
MAX	191	1560	1060	553	460	892	660	320	283	102	65	122
MIN	121	210	379	168	126	115	160	115	88	67	50	58
AC-FT	9640	32720	30890	20980	10730	16550	19430	10700	7870	4970	3460	6650

CAL YR 1984	TOTAL	139494	MEAN	381	MAX	2140	MIN	76	AC-FT	276700
WTR YR 1985	TOTAL	88017	MEAN	241	MAX	1560	MIN	50	AC-FT	174600

12027500 CHEHALIS RIVER NEAR GRAND MOUND, WA

LOCATION.--Lat 46°46'34", long 123°02'04", in NE¼NE¼ sec.22, T.15 N., R.3 W., Thurston County, Hydrologic Unit 17100103, on left bank at downstream side of highway bridge at Meadows, 1.5 mi southwest of Grand Mound, 7.0 mi downstream from Skookumchuck River, and at mile 59.9.

DRAINAGE AREA.--895 mi².

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1929-30(M), 1931, 1932-34(M).

GAGE.--Water-stage recorder. Datum of gage is 123.65 ft above National Geodetic Vertical Datum of 1929, supplementary adjustment of 1947. Prior to Oct. 3, 1934, nonrecording gage at present site at datum 3.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 54 ft³/s of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use upstream from station, including about 7 ft³/s for municipal water supply for Centralia and Chehalis. Water temperatures March 1952 to September 1974.

AVERAGE DISCHARGE.--57 years, 2,827 ft³/s, 42.89 in/yr, 2,048,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,200 ft³/s Jan. 21, 1972, gage height, 18.21 ft; minimum, 82 ft³/s Aug. 30, 1967; minimum gage height, 0.83 ft Aug. 27, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 29	1300	*18,000	*13.27	No other peak greater than base discharge.			

Minimum discharge, 176 ft³/s Aug. 28, 29, gage height, 1.91 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	273	1310	14000	7770	949	2020	5640	2450	703	454	277	235
2	273	5980	9630	5560	1040	1900	4610	2100	775	434	357	250
3	270	10300	6760	4330	995	1740	3870	1980	773	410	341	267
4	274	11500	5000	3610	891	1750	3320	2060	714	389	296	272
5	281	10700	3960	3170	884	1980	2850	2070	691	375	273	273
6	320	6520	3350	2880	887	2000	2490	1880	687	368	257	301
7	323	5300	2960	2650	1250	1810	2240	1690	1880	366	244	443
8	316	4730	2720	2460	1580	1640	2040	1530	3460	361	267	500
9	331	4600	2510	2280	1550	1530	1890	1470	2310	342	343	422
10	470	6060	2440	2130	1890	1450	1780	1370	1690	328	330	412
11	1500	12900	2380	1990	3810	1390	1720	1460	1330	316	292	561
12	1150	14500	2570	1860	9290	1310	1950	1370	1110	313	267	552
13	1290	11400	3030	1750	6960	1250	1730	1210	982	306	248	467
14	1550	8680	3080	1700	4700	1200	1550	1230	926	302	232	522
15	1400	6320	6380	1760	4250	1150	1440	1210	927	294	219	559
16	1110	4820	5700	1720	3920	1100	1380	1100	864	288	215	547
17	879	3830	4500	1640	3320	1070	1310	1020	772	287	210	535
18	738	3630	3760	1600	2840	1060	1220	958	709	291	200	700
19	651	4450	3150	1560	2590	1020	1220	906	662	289	194	631
20	613	4980	2780	1550	3280	1010	1220	870	623	269	196	519
21	619	4820	2550	1530	3130	1190	1180	842	600	253	199	459
22	584	4050	2790	1460	3200	1660	1170	820	583	247	198	425
23	544	3730	3660	1400	3290	2690	2030	788	565	257	195	409
24	519	5220	3920	1340	3120	7310	3000	781	546	259	193	380
25	525	4780	3590	1290	3170	5800	2830	779	531	260	187	361
26	801	4180	3260	1240	2800	4760	2530	757	508	250	183	345
27	1220	6320	3360	1200	2450	4710	3030	724	485	238	180	331
28	1530	15200	3750	1190	2190	4670	4140	705	476	229	178	321
29	1740	17800	4260	1170	---	3960	3660	717	473	223	179	310
30	1390	17000	11100	1110	---	3780	2960	735	461	219	186	302
31	1420	---	11600	1010	---	6340	---	713	---	224	209	---
TOTAL	24904	225610	144500	67910	80226	76250	72000	38295	27816	9441	7345	12611
MEAN	803	7520	4661	2191	2865	2460	2400	1235	927	305	237	420
MAX	1740	17800	14000	7770	9290	7310	5640	2450	3460	454	357	700
MIN	270	1310	2380	1010	884	1010	1170	705	461	219	178	235
CFSM	.90	8.40	5.21	2.45	3.20	2.75	2.68	1.38	1.04	.34	.26	.47
IN.	1.04	9.38	6.01	2.82	3.33	3.17	2.99	1.59	1.16	.39	.31	.52
AC-FT	49400	447500	286600	134700	159100	151200	142800	75960	55170	18730	14570	25010

CAL YR 1984 TOTAL 1127279 MEAN 3080 MAX 18800 MIN 227 CFSM 3.44 IN. 46.85 AC-FT 2236000
WTR YR 1985 TOTAL 786908 MEAN 2156 MAX 17800 MIN 178 CFSM 2.41 IN. 32.71 AC-FT 1561000

12031000 CHEHALIS RIVER AT PORTER, WA
(National stream quality accounting network station)

LOCATION.--Lat 46°56'17", long 123°18'45", on north line of NE¼ sec.28, T.17 N., R.5 W., Grays Harbor County, Hydrologic Unit 17100103, at downstream end of left bank bridge pier, 30 ft downstream from Porter Creek, 0.1 mi west of Porter, and at mile 33.3.

DRAINAGE AREA.--1,294 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1952 to September 1972, water years 1973-75 (annual maximum), May 1975 to current year.

REVISED RECORDS.--WSP 1716: Drainage area. WSP 1932: 1954, 1956, 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 23.64 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: July 8 to Sept. 30. Water-discharge records excellent except those above 20,000 ft^3/s and estimated daily discharges, which are good. Minor effect from regulation on Skookumchuck River by Skookumchuck Dam since January 1971. Up to 54 ft^3/s of Skookumchuck River is consumptively used at Centralia steam generating plant. Many small diversions for irrigation and domestic use upstream from station, including about 7 ft^3/s for municipal water supply for Centralia and Chehalis.

AVERAGE DISCHARGE.--30 years (water years 1935-72, 1976-85), 4,167 ft^3/s, 43.73 in/yr, 3,019,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,600 ft^3/s Jan. 22, 1972, gage height, 23.88 ft; minimum, 164 ft^3/s Oct. 17, 1952, gage height, 2.25 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 28, 1937, reached a stage of 24.7 ft, from levels by Grays Harbor County. Flood of December 1933 reached a stage of 23.13 ft, from river profile by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 30	1000	*21,800	*19.97	No other peak greater than base discharge.			

Minimum daily discharge, 300 ft^3/s Aug. 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	450	1960	20500	12300	1610	3100	8400	4030	1110	729	440	370
2	450	3580	16800	8830	1640	2930	7090	3490	1140	716	580	410
3	449	9290	11600	6950	1640	27[illegible]	6010	3160	1190	684	560	435
4	453	10700	8400	5770	1510	2640	5180	3130	1150	658	490	450
5	462	12000	6650	5050	1440	2800	4480	3070	1090	634	450	455
6	469	9380	5530	4560	1470	2880	3920	2930	1130	624	430	500
7	501	6810	4850	4190	1720	2720	3520	2670	2100	619	410	680
8	499	6300	4420	3880	2280	2510	3200	2480	3950	609	430	760
9	503	5970	4070	3610	2310	2350	2970	2370	3380	585	560	680
10	781	7240	3850	3370	2740	2230	2790	2250	2610	545	540	650
11	1360	12200	3780	3160	4680	2140	2720	2200	2110	520	490	860
12	1780	16000	3770	2970	9030	2040	2800	2160	1780	512	450	850
13	1600	15700	4230	2810	10000	1950	2710	2000	1580	505	410	750
14	2020	12500	4760	2730	7350	1880	2460	1910	1470	498	390	800
15	1940	9380	7300	2750	6130	1800	2290	1940	1430	486	370	860
16	1670	7250	8500	2720	5790	1740	2180	1790	1370	473	360	850
17	1350	5830	6990	2600	5040	1680	2080	1670	1240	475	350	830
18	1140	5290	5960	2510	4380	1640	2000	1570	1130	478	340	1050
19	994	5850	5060	2440	4030	1600	1940	1480	1060	465	330	970
20	917	6370	4470	2400	4450	1560	1920	1420	989	435	330	810
21	878	6590	4090	2370	4620	1720	1880	1370	942	425	330	710
22	853	5810	4250	2280	4530	2230	1850	1340	910	418	330	650
23	801	5330	5110	2190	4670	3360	2380	1300	886	420	330	600
24	762	6390	5610	2110	4510	7030	3760	1260	858	428	320	570
25	828	6660	5400	2040	4420	7820	3860	1250	835	430	320	550
26	1020	6080	4950	1960	4120	6640	3720	1220	817	423	310	530
27	1470	7310	4900	1900	3690	6420	4690	1180	781	400	300	515
28	1840	15400	5270	1860	3350	6590	5820	1150	763	380	300	500
29	2210	20000	5820	1830	---	5890	5710	1150	757	370	300	480
30	2080	21600	10700	1770	---	6020	4770	1170	744	370	318	465
31	1920	---	14400	1680	---	7980	---	1140	---	370	345	---
TOTAL	34450	270770	211990	107590	113150	106630	109100	61250	41302	15684	12213	19590
MEAN	1111	9026	6838	3471	4041	3440	3637	1976	1377	506	394	653
MAX	2210	21600	20500	12300	10000	7980	8400	4030	3950	729	580	1050
MIN	449	1960	3770	1680	1440	1560	1850	1140	744	370	300	370
CFSM	.86	6.98	5.28	2.68	3.12	2.66	2.81	1.53	1.06	.39	.30	.50
IN.	.99	7.78	6.09	3.09	3.25	3.07	3.14	1.76	1.19	.45	.35	.56
AC-FT	68330	537100	420500	213400	224400	211500	216400	121500	81920	31110	24220	38860

CAL YR 1984 TOTAL 1606963 MEAN 4391 MAX 22800 MIN 449 CFSM 3.39 IN. 46.20 AC-FT 3187000
WTR YR 1985 TOTAL 1103719 MEAN 3024 MAX 21600 MIN 300 CFSM 2.34 IN. 31.73 AC-FT 2189000

12031000 CHEHALIS RIVER AT PORTER, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-73, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: JULY 1959 to September 1960.
pH: July 1959 to September 1960.
WATER TEMPERATURES: July 1959 to September 1960, October 1961 to July 1972.
SUSPENDED SEDIMENT: October 1961 to September 1971.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
NOV 16...	1330	7100	85	7.60	7.0	6.0	13.8	112	80	K120	24	5
JAN 28...	1020	1860	89	7.70	4.0	2.3	10.7	80	K9	K12	29	--
MAR 18...	1330	1640	85	7.50	8.5	2.0	11.9	100	K10	K7	31	2
MAY 20...	1435	1410	86	7.20	15.5	2.3	9.4	92	57	<1	30	--
JUL 22...	1220	400	102	8.60	22.0	2.3	10.6	122	22	26	34	--
SEP 23...	1330	590	97	--	15.0	1.3	9.1	89	21	K10	32	--

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV 16...	6.2	2.0	4.7	29	0.4	0.8	19	8.5	4.4	<0.1	15
JAN 28...	7.6	2.4	5.0	27	0.4	0.6	31	5.0	4.6	<0.1	19
MAR 18...	8.2	2.6	5.4	27	0.4	0.7	29	6.4	5.0	<0.1	16
MAY 20...	7.7	2.6	5.4	28	0.4	0.6	34	6.1	4.7	<0.1	16
JUL 22...	8.5	3.2	7.3	31	0.6	0.8	48	5.0	6.2	<0.1	17
SEP 23...	8.3	2.7	6.2	29	0.5	1.4	33	6.7	5.0	<0.1	18

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
NOV 16...	38	53	0.05	728	--	0.80	0.02	0.5	0.04	0.01	0.02
JAN 28...	52	63	0.07	261	9	0.68	0.03	0.5	0.04	0.02	0.02
MAR 18...	71	62	0.1	314	1	0.49	0.04	0.5	0.02	0.02	0.01
MAY 20...	50	64	0.07	199	1	0.41	0.12	0.3	0.03	0.02	<0.01
JUL 22...	72	77	0.1	78	1	0.10	0.03	0.4	0.07	0.02	<0.01
SEP 23...	66	68	0.09	105	1	0.49	0.07	0.4	0.05	0.04	0.05

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12031000 CHEHALIS RIVER AT PORTER, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV											
16...	70	<1	11	<0.5	<1	<1	<3	5	130	6	<4
JAN											
28...	--	--	--	--	--	--	--	--	--	--	--
MAR											
18...	10	<1	9	<0.5	<1	<1	<3	2	130	9	5
MAY											
20...	20	<1	10	<0.5	<1	<1	<3	3	210	<1	<4
JUL											
22...	10	<1	9	<0.5	<1	<1	<3	3	110	1	<4
SEP											
23...	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV											
16...	13	0.7	<10	3	<1	<1	39	<6	<3	15	288
JAN											
28...	--	--	--	--	--	--	--	--	--	4	20
MAR											
18...	5	<0.1	<10	4	<1	<1	44	<6	15	7	31
MAY											
20...	15	<0.1	<10	3	<1	<1	44	<6	10	6	23
JUL											
22...	7	0.1	<10	1	<1	<1	48	<6	5	4	4.3
SEP											
23...	--	--	--	--	--	--	--	--	--	6	9.6

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12035000 SATSOP RIVER NEAR SATSOP, WA

LOCATION.--Lat 47°00'03", long 123°29'37", in NE¼SE¼ sec.36, T.18 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, in west pier of bridge on old U.S. Highway 410, 0.6 mi west of Satsop, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--299 mi².

PERIOD OF RECORD.--March 1929 to current year.

REVISED RECORDS.--WSP 1286: 1930-35(M), 1937(M). WSP 1716: Drainage area. WSP 1932: 1945, 1949(M), 1951(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1938, nonrecording gage at site 60 ft upstream at datum 20.9 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Chemical analyses July 1960 to September 1971, October 1974 to September 1975, October 1976 to June 1980; sediment records November 1961 to June 1965 (partial-record station).

AVERAGE DISCHARGE.--56 years, 2,027 ft³/s, 92.06 in/yr, 1,469,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,600 ft³/s Jan. 22, 1935, elevation, 38.9 ft, from floodmarks, present datum; minimum, 166 ft³/s Sept. 21, 1938; minimum elevation, 21.66 ft, present datum, Sept. 3-6, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of 37.1 ft, from high-water mark, at railroad bridge 300 ft downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Elevation (ft)	Date	Time	Discharge (ft³/s)	Elevation (ft)
Dec. 14	2300	*14,200	*30.13	No other peak greater than base discharge.			

Minimum discharge, 223 ft³/s Aug. 26-30, elevation, 21.92 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256	1530	4440	2290	786	1460	3990	2090	593	417	305	294
2	255	5660	3500	2030	773	1380	3410	1830	574	408	299	259
3	250	6260	2920	1860	737	1290	3020	1780	559	394	288	246
4	257	5180	2540	1740	712	1370	2550	1730	595	387	279	240
5	277	3710	2260	1670	715	1430	2200	1730	570	382	274	243
6	278	2930	2040	1620	720	1380	1980	1570	598	382	272	286
7	298	3330	1990	1550	931	1280	1840	1440	1230	378	276	304
8	470	3010	3620	1480	829	1210	1720	1380	1120	370	296	273
9	923	3160	2970	1410	805	1160	1630	1370	876	364	284	258
10	1890	4260	2660	1330	1020	1120	1540	1270	763	356	272	292
11	1780	6280	2360	1260	2630	1080	1730	1210	700	350	267	307
12	1500	5190	2370	1200	4140	1040	2390	1130	655	342	260	303
13	2430	4150	2260	1150	2690	1010	1890	1080	636	338	256	562
14	1920	3190	5840	1170	2210	974	1640	1040	673	338	254	651
15	1560	2630	8610	1420	2460	945	1490	978	748	336	249	665
16	1250	2270	4610	1320	2210	930	1380	936	671	334	246	525
17	1040	2030	3500	1230	1930	911	1280	893	620	336	242	583
18	897	2420	2860	1200	1740	898	1260	855	586	330	239	515
19	806	3320	2450	1180	1780	883	1180	821	554	323	238	440
20	736	4550	2210	1180	1950	938	1110	797	533	316	239	389
21	675	3220	2020	1110	1820	1110	1050	772	518	311	239	358
22	629	2620	2300	1050	1880	1340	1040	742	507	310	238	339
23	591	2680	2550	1010	1900	2550	1720	734	494	306	235	323
24	572	2830	2370	961	2290	3460	1790	730	481	304	233	308
25	1020	3040	2170	932	2350	2820	1670	704	474	302	229	296
26	1230	2940	1990	897	1960	2520	1780	682	464	297	228	289
27	1130	4250	1990	866	1720	2600	4790	663	451	292	227	278
28	1350	9620	1840	840	1570	2430	4940	646	443	290	228	270
29	1270	7210	2080	813	---	2200	3190	646	435	285	225	262
30	1320	6040	2860	786	---	4000	2480	623	427	288	235	256
31	1400	---	2630	765	---	5060	---	599	---	298	300	---
TOTAL	30260	119510	90810	39320	47258	52779	63680	33471	18548	10464	7952	10614
MEAN	976	3984	2929	1268	1688	1703	2123	1080	618	338	257	354
MAX	2430	9620	8610	2290	4140	5060	4940	2090	1230	417	305	665
MIN	250	1530	1840	765	712	883	1040	599	427	285	225	240
CFSM	3.26	13.3	9.80	4.24	5.65	5.70	7.10	3.61	2.07	1.13	.86	1.18
IN.	3.76	14.87	11.30	4.89	5.88	6.57	7.92	4.16	2.31	1.30	.99	1.32
AC-FT	60020	237000	180100	77990	93740	104700	126300	66390	36790	20760	15770	21050

CAL YR 1984 TOTAL 756360 MEAN 2067 MAX 13900 MIN 250 CFSM 6.91 IN. 94.10 AC-FT 1500000
WTR YR 1985 TOTAL 524666 MEAN 1437 MAX 9620 MIN 225 CFSM 4.81 IN. 65.28 AC-FT 1041000

12035380 WYNOOCHEE LAKE NEAR GRISDALE, WA

LOCATION.--Lat 47°23'08", long 123°36'16", in NE¼NW¼ sec.20, T.22 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, in monolith No. 6, near center line axis of Wynoochee Dam on Wynoochee River, 2.0 mi north of Grisdale, at river mile 51.8.

DRAINAGE AREA.--41.0 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to May 22, 1973, staff gage on upstream face of dam.

REMARKS.--Reservoir is formed by concrete gravity-type dam with gate-type spillway; construction began in 1969; completed in 1972. Usable capacity, 67,258 acre-ft below elevation 690 ft, sluice invert level, and 800 ft, full pool elevation. Dead storage, 2,117 acre-ft below elevation 690 ft. Figures given herein represent total contents. Water is used for flood control, water supply, and recreation.

COOPERATION.--Daily elevations at 0800 hours, monthend elevations at 2400 hours, and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 70,078 acre-ft July 13, 1983, elevation, 800.60 ft; minimum observed, 12,210 acre-ft Oct. 31, 1972, elevation, 725.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 69,372 acre-ft June 15, elevation, 799.97 ft; minimum observed, 13,054 acre-ft Dec. 3, elevation, 727.67 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	774.53	44,077	--
Oct. 31	762.68	34,476	-9,601
Nov. 30	731.96	15,039	-19,437
Dec. 31	750.91	26,019	+10,980
CAL YR 1984	--	--	-10,084
Jan. 31	751.86	26,659	+640
Feb. 28	754.64	28,576	+1,917
Mar. 31	760.04	32,484	+3,908
Apr. 30	787.78	56,420	+23,936
May 31	797.47	66,592	+10,172
June 30	798.33	67,541	+949
July 31	789.38	58,032	-9,509
Aug. 31	777.26	46,469	-11,563
Sept. 30	770.14	40,381	-6,088
WTR YR 1985	--	--	-3,696

12035400 WYNOOCHEE RIVER NEAR GRISDALE, WA

LOCATION.--Lat 47°22'50", long 123°36'31", in NW¼SW¼ sec.20, T.22 N., R.7 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, on right bank 0.5 mi downstream from Wynoochee Dam, 1.7 mi north of Grisdale, 1.7 mi downstream from Scatter Creek, and at mile 51.3.

DRAINAGE AREA.--41.3 mi^2.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 630 ft, from topographic map. Prior to Nov. 3, 1967, at site 1,500 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Since August 1972, flow regulated by Wynoochee Lake (see sta 12035380) for flood control, during summer months to augment the natural river flow, and for the water supply for the city of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction. No diversion upstream from station.

AVERAGE DISCHARGE.--20 years, 534 ft^3/s, 175.59 in/yr, 386,900 acre-ft/yr, adjusted for storage in Wynoochee Lake since October 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft^3/s Dec. 12, 1966, gage height, about 18.0 ft, from graph based on gage readings, site and datum then in use; minimum, 0.9 ft^3/s Sept. 10, 12, 1974, gage height, 0.06 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,100 ft^3/s Nov. 3, gage height 4.45 ft; minimum, 183 ft^3/s Jan. 25, Apr. 3, gage height, 1.26 ft; minimum daily, 195 ft^3/s Apr. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	248	674	974	249	202	206	212	200	202	201	253	253
2	249	1500	959	249	202	207	215	200	202	201	253	253
3	249	2320	604	249	202	207	207	201	202	201	253	252
4	249	3020	333	249	202	208	203	202	202	201	252	249
5	249	2530	333	249	202	208	205	202	202	202	251	245
6	248	1420	333	249	202	208	205	202	203	202	249	244
7	250	697	338	249	202	207	205	202	204	202	250	242
8	255	700	348	249	202	207	207	203	203	221	249	242
9	918	701	352	249	202	207	208	204	203	253	249	242
10	1850	706	820	249	202	207	209	206	202	253	249	242
11	1760	716	1020	249	205	207	212	201	202	254	249	242
12	1410	722	281	249	203	206	205	201	202	254	245	242
13	1410	1090	229	249	202	205	201	202	202	254	245	242
14	1400	1370	238	250	203	205	202	202	246	255	245	243
15	1380	1350	241	251	203	205	202	203	387	256	250	242
16	1220	1330	242	252	203	205	203	205	385	256	252	244
17	947	1310	242	253	203	205	204	205	301	284	250	244
18	692	1300	243	253	203	205	205	205	253	302	249	243
19	448	1350	245	253	205	205	205	205	253	245	249	243
20	394	1830	245	253	204	205	204	205	253	245	248	243
21	393	2060	245	253	205	205	202	207	233	245	247	243
22	393	1980	245	253	205	207	207	208	221	245	245	243
23	392	1680	247	253	205	209	204	205	221	246	251	243
24	392	860	249	253	205	208	200	201	207	247	256	242
25	579	590	249	225	205	208	196	202	200	248	256	242
26	642	797	249	203	205	208	195	202	200	249	255	242
27	585	1310	249	203	206	208	198	202	200	249	254	242
28	582	1930	249	203	206	208	199	202	200	249	253	242
29	472	2180	249	202	---	209	200	202	200	250	253	242
30	392	1510	249	202	---	213	200	202	201	244	253	242
31	413	---	249	202	---	212	---	202	---	253	253	---
TOTAL	21061	41533	11349	7454	5696	6420	6120	6291	6792	7467	7766	7315
MEAN	679	1384	366	240	203	207	204	203	226	241	251	244
MAX	1850	3020	1020	253	206	213	215	208	387	302	256	253
MIN	248	590	229	202	202	205	195	200	200	201	245	242
AC-FT	41770	82380	22510	14790	11300	12730	12140	12480	13470	14810	15400	14510
MEAN†	523	1058	545	251	238	271	607	368	242	86	62	142
CFSM†	12.7	25.6	13.2	6.08	5.76	6.56	14.7	8.91	5.86	2.08	1.50	3.44
IN.†	14.61	28.57	15.20	7.01	6.00	7.55	16.38	10.28	6.55	2.41	1.74	3.82
AC-FT†	32170	62940	33490	15430	13220	16640	36080	22650	14420	5301	3837	8422

CAL YR 1984 TOTAL 189552 MEAN 518 MAX 4370 MIN 194 AC-FT 376000 MEAN† 504 CFSM† 12.2 IN.† 166.12 AC-FT† 365900
WTR YR 1985 TOTAL 135264 MEAN 371 MAX 3020 MIN 195 AC-FT 268300 MEAN† 365 CFSM† 8.84 IN.† 120.13 AC-FT† 264600

† Adjusted for change in contents in Lake Wynoochee.

12035450 BIG CREEK NEAR GRISDALE, WA

LOCATION.--Lat 47°22'28", long 123°38'08", in SE¼SE¼ sec.24, T.22 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, Olympic National Forest, on left bank 280 ft upstream from road bridge, 1.5 mi northwest of Grisdale, and 0.6 mi upstream from mouth.

DRAINAGE AREA.--9.57 mi².

PERIOD OF RECORD.--August 1972 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 600 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--13 years, 116 ft³/s, 164.61 in/yr, 84,040 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft³/s Dec. 26, 1975, gage height, 8.89 ft, from rating curve extended above 1,500 ft³/s; minimum, 8.1 ft³/s on part or all of each day Aug. 23-30, 1985, gage height, 2.39 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 14	1400	*1,380	*6.43	No other peak greater than base discharge.			

Minimum discharge, 8.1 ft³/s on part or all of each day Aug. 23-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	184	136	60	31	72	197	86	25	19	12	14
2	12	511	107	56	30	66	181	79	24	18	11	12
3	12	602	87	60	29	62	163	76	24	18	11	11
4	23	328	73	63	28	63	124	88	28	17	11	11
5	22	172	63	63	27	66	109	81	25	17	11	11
6	20	156	56	63	28	62	103	71	27	17	10	19
7	174	207	199	62	28	59	99	65	70	16	12	16
8	354	143	379	60	25	58	93	66	48	16	11	13
9	227	142	135	56	25	59	87	66	39	16	11	17
10	329	287	93	52	34	59	82	61	35	16	10	16
11	170	294	75	49	147	57	163	58	32	16	10	15
12	231	202	70	47	110	54	166	53	31	15	9.8	43
13	259	153	66	45	70	51	113	50	30	15	9.6	58
14	160	107	638	65	90	49	94	48	37	15	9.4	90
15	111	85	266	85	115	49	83	46	36	14	9.4	69
16	82	70	151	66	82	49	73	43	32	14	9.2	56
17	66	65	117	60	59	49	67	41	30	14	9.1	61
18	54	178	98	58	62	48	64	40	29	13	8.9	46
19	47	365	86	56	72	48	59	38	27	13	8.7	38
20	41	245	79	53	74	56	55	36	26	13	8.7	33
21	36	121	73	49	72	58	51	35	25	12	8.7	30
22	32	89	109	46	85	64	56	33	24	12	8.7	27
23	30	127	124	43	97	164	123	32	24	12	8.5	24
24	27	111	103	41	167	138	119	32	24	12	8.4	24
25	113	94	88	40	117	98	100	31	23	12	8.2	22
26	76	78	79	38	90	84	124	30	22	12	8.1	21
27	67	277	72	36	79	84	421	29	21	12	8.1	20
28	79	444	65	35	74	79	207	29	21	12	8.1	19
29	63	264	64	33	---	79	127	29	20	12	8.1	18
30	88	193	70	32	---	235	101	27	20	12	19	17
31	76	---	66	31	---	203	---	26	---	12	23	---
TOTAL	3093	6294	3887	1603	1957	2422	3604	1525	879	444	319.7	871
MEAN	99.8	210	125	51.7	69.9	78.1	120	49.2	29.3	14.3	10.3	29.0
MAX	354	602	638	85	167	235	421	88	70	19	23	90
MIN	12	65	56	31	25	48	51	26	20	12	8.1	11
CFSM	10.4	21.9	13.1	5.40	7.30	8.16	12.5	5.14	3.06	1.49	1.08	3.03
IN.	12.02	24.47	15.11	6.23	7.61	9.41	14.01	5.93	3.42	1.73	1.24	3.39
AC-FT	6130	12480	7710	3180	3880	4800	7150	3020	1740	881	634	1730

CAL YR 1984 TOTAL 41378 MEAN 113 MAX 731 MIN 11 CFSM 11.8 IN. 160.84 AC-FT 82070
WTR YR 1985 TOTAL 26898.7 MEAN 73.7 MAX 638 MIN 8.1 CFSM 7.70 IN. 104.96 AC-FT 53350

12036000 WYNOOCHEE RIVER ABOVE SAVE CREEK, NEAR ABERDEEN, WA

LOCATION.--Lat 47°17'57", long 123°39'07", in NE¼NE¼ sec.23, T.21 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on right bank 0.8 mi upstream from Save Creek, 2.5 mi downstream from Oxbow Dam Site, 11.0 mi downstream from Wynoochee Dam, 23.5 mi northeast of city hall in Aberdeen, and at mile 40.6.

DRAINAGE AREA.--74.1 mi^2.

PERIOD OF RECORD.--May 1925 to current year. Published as "at Oxbow, near Aberdeen" 1925-52, where drainage area was 70.7 mi^2. Records published for both sites October 1951 to October 1952.

REVISED RECORDS.--WSP 1346: 1952. WSP 1736: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 401 ft above National Geodetic Vertical Datum of 1929 (stadia traverse). Prior to Nov. 7, 1925, nonrecording gage at site 2.3 mi upstream at different datum. Nov. 7, 1925, to Sept. 3, 1947, water-stage recorder at site 1.5 mi upstream at datum 444.0 ft above National Geodetic Vertical Datum of 1929 (levels by city of Aberdeen). Sept. 4, 1947, to Oct. 13, 1952, water-stage recorder at site 2.5 mi upstream at datum about 91 ft higher. Oct. 5, 1951, to Sept. 30, 1976, water-stage recorder on left bank at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Since August 1972, flow regulated by Wynoochee Lake (station 12035380) for flood control, during summer months to augment the natural river flow, and for the water supply for the city of Aberdeen. Some regulation from August 1969 to September 1972 due to dam construction. No diversions upstream from station.

AVERAGE DISCHARGE.--60 years, 828 ft^3/s, 151.74 in/yr, 599,900 acre-ft/yr, adjusted for storage in Wynoochee Lake since October 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,600 ft^3/s Dec. 9, 1956, gage height, 16.95 ft, from rating curve extended above 9,000 ft^3/s, minimum, 57 ft^3/s Sept. 3, 4, 5, 1972, gage height, 4.43 ft.

EXTREMES FOR CURRENT YEAR.--Maximun discharge, 4,590 ft^3/s Nov. 3, gage height, 8.85 ft; minimum, 290 ft^3/s Oct. 2, 3, 5, 6; minimum gage height, 5.28 ft July 6, 7, 8; minimum daily, 291 ft^3/s Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	295	1100	1560	509	333	437	835	518	330	304	321	326
2	292	2770	1430	489	328	422	765	492	327	302	317	320
3	291	3810	1060	482	325	418	701	487	328	301	316	317
4	310	4130	674	485	322	435	602	520	337	299	316	317
5	304	3370	631	484	323	455	554	495	327	299	314	320
6	306	2210	604	479	335	439	530	470	340	299	313	331
7	484	1350	818	472	334	424	511	449	433	297	317	321
8	751	1230	1260	463	324	414	492	464	379	304	316	315
9	1200	1260	839	453	327	411	476	455	357	343	313	327
10	2530	1550	1100	441	369	404	462	447	346	343	312	325
11	2260	1650	1560	432	765	398	647	428	338	342	310	318
12	1920	1450	666	426	661	389	657	414	334	340	309	363
13	2000	1640	575	421	499	382	537	412	333	340	307	401
14	1830	1880	2070	464	511	377	491	403	376	339	305	455
15	1720	1790	1260	501	575	373	463	394	528	338	308	420
16	1490	1720	845	460	492	370	441	387	521	338	313	404
17	1150	1690	715	445	451	367	427	381	452	352	312	412
18	880	1970	638	438	428	364	427	376	378	393	312	377
19	615	2430	592	438	475	368	411	373	374	327	311	357
20	524	2730	567	434	469	390	403	368	373	327	310	345
21	513	2700	556	426	461	410	394	361	356	324	309	338
22	503	2490	653	419	480	448	431	358	339	324	307	332
23	500	2380	684	412	499	790	610	356	336	323	311	329
24	497	1430	618	407	675	712	567	347	324	322	317	326
25	845	1040	576	383	572	588	512	344	312	322	317	322
26	883	1140	547	351	502	549	587	340	312	320	316	320
27	797	2350	532	345	466	560	1310	337	310	319	317	317
28	815	3470	509	343	448	535	864	344	309	317	316	317
29	691	3330	522	339	---	526	644	340	309	321	314	315
30	641	2480	559	335	---	1030	561	333	307	311	350	313
31	628	---	535	332	---	911	---	331	---	322	343	---
TOTAL	28465	64540	25755	13308	12749	15096	17312	12524	10725	10052	9769	10300
MEAN	918	2151	831	429	455	487	577	404	358	324	315	343
MAX	2530	4130	2070	509	765	1030	1310	520	528	393	350	455
MIN	291	1040	509	332	322	364	394	331	307	297	305	313
AC-FT	56460	128000	51090	26400	25290	29940	34340	24840	21270	19940	19380	20430
MEAN†	762	1826	1009	440	490	550	980	569	374	170	127	241
CFSM†	10.3	24.6	13.6	5.94	6.61	7.42	13.2	7.68	5.05	2.29	1.71	3.25
IN.†	11.86	27.45	15.71	6.84	6.89	8.57	14.75	8.86	5.62	2.64	1.98	3.63
AC-FT†	46860	108600	62070	27040	27210	33850	58280	35010	22220	10430	7820	14340

CAL YR 1984 TOTAL 320319 MEAN 875 MAX 6750 MIN 268 AC-FT 635400 MEAN† 862 CFSM† 11.6 IN.† 158.22 AC-FT† 625300
WTR YR 1985 TOTAL 230595 MEAN 632 MAX 4130 MIN 291 AC-FT 457400 MEAN† 627 CFSM† 8.46 IN.† 114.80 AC-FT† 453700

† Adjusted for change in contents in Wynoochee Lake.

12036650 ANDERSON CREEK NEAR MONTESANO, WA

LOCATION.--Lat 47°07'02", long 123°39'17", in SE¼NE¼ sec.22, T.19 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on right bank 70 ft upstream from Wynoochee Valley road bridge, 9.6 mi northwest of Montesano, and 1.0 mi upstream from mouth.

DRAINAGE AREA.--2.72 mi².

PERIOD OF RECORD.--August 1972 to September 1985 (discontinued).

REVISED RECORDS.--WDR WA-78-1: 1976, 1977.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 150 ft, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 17-30. Records fair. Natural regulation by upstream beaver dams. No diversions upstream from station.

AVERAGE DISCHARGE.--13 years, 14.5 ft³/s, 72.39 in/yr, 10,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 452 ft³/s Feb. 13, 1982, gage height, 8.53 ft; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	0115	*195	*5.57	Mar. 30	1300	102	4.78
Dec. 14	1630	139	5.09				

Minimum discharge, no flow on part or all of each day July 25 to Aug. 1, Aug. 5 to Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	29	45	27	11	8.9	37	17	2.1	.81	.03	.00
2	.83	69	33	21	11	8.1	28	14	1.9	.67	.11	.00
3	.88	65	24	17	11	7.9	23	13	1.8	.89	.08	.00
4	1.1	51	19	14	11	9.2	18	12	2.5	.79	.06	.00
5	1.3	36	15	12	12	10	16	9.9	1.8	.89	.03	.00
6	1.5	28	13	10	16	9.4	13	9.2	3.6	.97	.00	.00
7	3.5	25	13	8.8	18	8.9	11	8.4	12	.88	.00	.00
8	6.8	25	17	7.9	16	8.6	9.6	8.9	5.6	.39	.00	.21
9	7.5	27	15	7.1	16	8.3	8.7	8.5	4.2	.49	.00	.25
10	17	66	18	6.4	27	7.6	7.9	7.9	3.6	.47	.00	.99
11	8.5	78	17	5.8	62	6.9	10	7.2	3.1	.38	.03	1.2
12	9.3	63	20	5.4	50	6.5	9.1	6.7	2.9	.43	.02	1.6
13	16	42	22	5.0	30	5.9	7.9	6.3	3.0	.34	.00	4.1
14	14	30	74	5.6	24	5.6	7.5	6.0	4.0	.38	.00	4.1
15	10	22	74	5.3	20	5.2	7.1	5.5	3.7	.44	.00	3.2
16	8.2	18	42	4.8	18	4.9	6.4	4.8	2.8	.48	.00	2.4
17	6.7	16	30	4.6	15	5.0	6.1	4.4	2.3	.52	.00	3.0
18	5.8	19	23	4.3	13	4.7	6.3	4.1	2.1	.51	.00	1.8
19	4.9	28	19	4.4	15	4.6	5.7	3.8	1.9	.10	.00	1.2
20	4.6	38	16	4.3	14	5.0	5.7	3.6	1.8	.08	.00	.90
21	4.0	30	14	4.0	13	6.8	5.2	3.3	1.6	.06	.00	.69
22	3.7	23	16	4.0	13	11	7.4	3.0	1.4	.06	.00	.55
23	3.4	27	17	3.9	12	40	16	3.1	1.3	.06	.00	.44
24	3.5	28	17	4.2	13	35	13	3.0	1.2	.04	.00	.36
25	15	33	16	4.5	12	30	13	2.7	1.2	.01	.00	.30
26	13	34	14	4.6	11	27	20	2.5	1.1	.00	.00	.26
27	14	79	15	5.2	10	35	56	2.5	.96	.00	.00	.23
28	19	145	13	5.6	9.5	33	46	2.4	.97	.00	.00	.20
29	18	77	27	6.6	---	26	30	2.3	.92	.00	.00	.18
30	20	65	54	7.6	---	71	22	2.3	.94	.00	.00	.16
31	18	---	38	8.2	---	58	---	2.0	---	.00	.00	---
TOTAL	260.65	1316	790	239.1	503.5	514.0	472.6	190.3	78.29	11.14	.36	28.32
MEAN	8.41	43.9	25.5	7.71	18.0	16.6	15.8	6.14	2.61	.36	.01	.94
MAX	20	145	74	27	62	71	56	17	12	.97	.11	4.1
MIN	.64	16	13	3.9	9.5	4.6	5.2	2.0	.92	.00	.00	.00
CFSM	3.09	16.1	9.37	2.83	6.62	6.10	5.81	2.26	.96	.13	.00	.35
IN.	3.56	18.00	10.80	3.27	6.89	7.03	6.46	2.60	1.07	.15	.00	.39
AC-FT	517	2610	1570	474	999	1020	937	377	155	22	.7	56

CAL YR 1984	TOTAL	5986.39	MEAN	16.4	MAX	247	MIN	.02	CFSM	6.03	IN.	81.87	AC-FT	11870
WTR YR 1985	TOTAL	4404.26	MEAN	12.1	MAX	145	MIN	.00	CFSM	4.45	IN.	60.23	AC-FT	8740

12037400 WYNOOCHEE RIVER ABOVE BLACK CREEK, NEAR MONTESANO, WA

LOCATION.--Lat 47°00'42", long 123°39'15", in SE¼SE¼ sec.27, T.18 N., R.8 W., Grays Harbor County, Hydrologic Unit 17100104, on left bank 2,000 ft upstream from Black Creek, 3.5 mi northwest of Montesano, and at mile 5.9.

DRAINAGE AREA.--155 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft, from topographic map.

REMARKS.--No estimated daily discharges. Water-discharge records good. City of Aberdeen diverted about 114 ft³/s for municipal supply at intake 2.2 mi upstream. Other small diversions for irrigation and domestic use. Since August 1972, flow regulated by Wynoochee Dam, 45.7 mi upstream, for flood control, during summer months to augment the natural river flow, and for the water supply for the city of Aberdeen. Some regulation from 1969 to August 1972 due to dam construction.

AVERAGE DISCHARGE.--29 years, 1,289 ft³/s, 933,900 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,500 ft³/s Jan. 19, 1968; maximum gage height, 20.54 ft Dec. 10, 1956; minimum discharge, 3.0 ft³/s part or all of each day Aug. 26-30, 1967, gage height, 2.86 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,550 ft³/s Nov. 28, gage height, 9.06 ft; minimum, 185 ft³/s Aug. 23, 24, gage height, 2.52 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	213	1060	2860	1130	384	651	1870	1000	326	247	234	266
2	211	3750	2340	983	372	614	1530	874	316	242	230	248
3	209	4520	1970	887	354	586	1330	844	308	235	234	238
4	224	4900	1310	833	341	659	1140	807	336	234	230	234
5	235	4130	1130	791	346	724	979	790	314	232	225	248
6	232	3050	1010	756	360	668	879	728	350	233	225	300
7	290	2140	1000	717	481	639	807	674	624	229	234	270
8	623	1860	1830	683	421	604	747	672	522	225	252	243
9	826	1950	1430	652	411	579	698	703	428	243	234	238
10	2430	2610	1330	626	538	556	660	649	385	284	230	261
11	2510	3250	2070	599	1550	532	765	627	359	297	225	261
12	2010	2790	1410	574	2000	512	997	582	342	282	221	270
13	2340	2380	1130	554	1240	492	803	561	336	261	221	364
14	2110	2450	2800	592	1010	474	706	551	375	260	217	419
15	1920	2220	4120	660	1070	464	651	518	470	256	213	446
16	1730	2050	2250	606	922	451	615	494	515	256	213	392
17	1400	1960	1680	572	813	438	573	473	503	256	209	436
18	1110	2300	1360	554	730	427	580	462	392	287	205	380
19	825	2790	1170	546	808	418	546	447	359	275	201	331
20	625	3460	1050	549	879	456	524	435	348	238	201	310
21	563	3200	962	525	823	543	502	423	338	234	197	295
22	529	2880	1130	512	818	676	522	406	311	238	193	285
23	513	3060	1220	497	794	1350	959	393	302	234	189	348
24	508	2410	1150	481	968	1710	939	386	295	234	197	353
25	932	2030	1040	468	975	1340	851	369	276	234	201	261
26	1180	1890	956	426	838	1200	948	359	265	230	205	243
27	1040	3570	979	402	749	1280	2460	352	258	230	213	234
28	1140	6070	896	390	691	1210	2450	348	256	230	217	225
29	1050	5260	1130	379	---	1070	1570	354	252	225	217	221
30	958	4490	1620	371	---	2310	1190	338	252	230	238	213
31	923	---	1340	361	---	2540	---	327	---	230	295	---
TOTAL	31409	90480	47673	18676	21686	26193	29791	16946	10713	7621	6816	8833
MEAN	1013	3016	1538	602	775	845	993	547	357	246	220	294
MAX	2510	6070	4120	1130	2000	2540	2460	1000	624	297	295	446
MIN	209	1060	896	361	341	418	502	327	252	225	189	213
AC-FT	62300	179500	94560	37040	43010	51950	59090	33610	21250	15120	13520	17520

CAL YR 1984	TOTAL	470136	MEAN	1285	MAX	10300	MIN	185	AC-FT	932500
WTR YR 1985	TOTAL	316837	MEAN	868	MAX	6070	MIN	189	AC-FT	628400

BEST COPY AVAILABLE

12037400 WYNOOCHEE RIVER ABOVE BLACK CREEK, NEAR MONTESANO, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment records October 1961 to June 1965.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1969 to current year.

INSTRUMENTATION.--Temperature recorder since October 1969.

REMARKS.--Interruptions in record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C Aug. 10, 1971; minimum, 1.0°C Jan. 9, 10, 1973, Jan. 7-9, 1974, Jan. 29, 1980.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 22.0°C July 18, 19, Aug. 13, 15, 17; minimum recorded, 3.0°C Dec. 19.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.5	13.0	13.5	7.5	7.0	7.5	6.5	5.5	6.0			
2	16.5	12.0	14.0	9.0	7.5	8.5	5.5	5.0	5.5			
3	15.5	12.5	14.0	9.0	9.0	9.0	5.5	5.0	5.5			
4	16.0	13.5	14.5	9.5	8.5	9.0	5.5	4.5	5.0			
5	14.0	12.5	13.5	9.0	8.0	8.5	5.5	4.5	5.0			
6	13.0	12.5	13.0	9.0	8.5	9.0	5.5	4.0	5.0			
7	14.5	13.0	13.5	9.0	8.5	8.5	6.5	5.5	6.0			
8	14.0	13.0	13.5	8.5	8.0	8.0	6.5	6.0	6.5			
9	13.0	12.0	12.5	8.5	7.5	8.0	6.0	5.5	6.0			
10	12.0	10.5	11.0	9.0	8.0	8.5	5.5	5.0	5.5			
11	11.0	10.0	10.5	9.0	8.5	8.5	5.0	4.5	4.5			
12	10.5	10.0	10.0	9.5	9.0	9.0	5.5	4.0	5.0			
13	10.5	9.5	10.0	9.0	8.0	8.5	6.0	5.0	5.5			
14	10.0	9.0	9.5	7.5	7.0	7.5	6.5	5.5	6.0			
15	10.0	9.0	9.5	7.5	6.5	7.0	6.0	5.5	6.0			
16	10.5	9.0	9.5	7.5	6.5	7.0	6.0	5.5	6.0			
17	10.0	8.5	9.5	7.5	7.0	7.0	6.0	4.5	5.5			
18	9.5	8.5	9.0	8.0	7.5	8.0	4.5	3.5	4.0			
19	9.5	9.0	9.0	8.0	7.5	8.0	4.0	3.0	3.5			
20	10.5	9.0	10.0	8.0	7.5	7.5	4.0	3.5	3.5			
21	11.0	9.5	10.0	7.5	7.0	7.0	5.0	4.0	4.5			
22	10.0	9.0	9.5	7.5	6.5	7.0	6.0	5.0	5.5			
23	9.5	9.0	9.[illegible]	7.5	7.0	7.5	6.5	6.0	6.0			
24	10.5	9.5	10.0	7.0	6.5	7.0	6.0	5.5	5.5			
25	11.5	10.5	11.0	6.5	6.5	6.5	---	---	---			
26	10.0	9.0	9.5	6.5	6.0	6.5	---	---	---			
27	9.5	8.5	9.0	7.0	5.0	6.0	---	---	---			
28	9.5	8.5	8.5	7.5	7.0	7.0	---	---	---			
29	9.0	8.0	8.5	7.0	6.0	6.5	---	---	---			
30	9.0	8.5	8.5	6.5	6.0	6.5	---	---	---			
31	8.0	7.5	7.5	---	---	---	---	---	---			
MONTH	16.5	7.5	10.5	9.5	5.0	7.5	---	---	---			

12037400 WYNOOCHEE RIVER ABOVE BLACK CREEK, NEAR MONTESANO, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	8.5	7.0	7.5	---	---	---
2				---	---	---	9.0	7.5	8.0	---	---	---
3				---	---	---	8.0	7.0	7.5	---	---	---
4				---	---	---	9.0	7.0	8.0	---	---	---
5				---	---	---	10.0	8.0	8.5	---	---	---
6				---	---	---	11.5	7.0	9.0	---	---	---
7				---	---	---	11.5	9.0	10.0	---	---	---
8				---	---	---	11.5	9.0	10.0	---	---	---
9				---	---	---	---	---	---	---	---	---
10				---	---	---	---	---	---	---	---	---
11				---	---	---	---	---	---	---	---	---
12				---	---	---	---	---	---	---	---	---
13				8.0	5.0	6.5	---	---	---	---	---	---
14				7.5	5.5	6.5	---	---	---	---	---	---
15				8.5	5.0	7.0	---	---	---	---	---	---
16				8.5	6.0	7.5	---	---	---	---	---	---
17				9.0	7.5	8.0	---	---	---	---	---	---
18				7.5	7.0	7.0	---	---	---	---	---	---
19				8.0	6.5	7.5	---	---	---	---	---	---
20				8.5	6.5	7.5	---	---	---	---	---	---
21				7.5	5.5	6.5	---	---	---	---	---	---
22				7.0	5.0	6.0	---	---	---	---	---	---
23				7.0	6.0	6.0	---	---	---	---	---	---
24				6.0	5.0	5.5	---	---	---	---	---	---
25				7.0	5.0	6.0	---	---	---	---	---	---
26				5.5	5.0	5.0	---	---	---	---	---	---
27				6.5	5.0	6.0	---	---	---	---	---	---
28				7.5	5.0	6.5	---	---	---	---	---	---
29				6.5	5.5	6.0	---	---	---	---	---	---
30				7.0	5.5	6.5	---	---	---	---	---	---
31				7.0	6.5	7.0	---	---	---	13.5	11.0	12.5
MONTH				---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.5	11.5	12.0	18.0	12.5	15.5	17.5	15.5	16.5	19.0	14.5	16.5
2	13.0	11.0	12.0	20.0	14.5	17.5	20.0	15.5	17.5	18.5	15.0	16.5
3	13.0	11.5	12.5	20.5	16.0	18.0	21.0	15.5	18.0	15.5	14.5	15.0
4	15.5	12.0	13.5	20.0	15.5	18.0	20.5	16.0	17.5	16.5	14.5	15.5
5	15.5	12.5	14.0	18.0	16.0	17.0	20.0	14.5	17.0	16.0	15.0	15.5
6	13.5	12.0	12.5	17.5	14.5	16.0	16.5	15.5	16.0	15.0	14.0	14.5
7	13.5	11.5	12.5	20.0	14.5	17.5	18.0	16.0	17.0	15.0	13.0	14.0
8	15.5	11.0	13.0	21.0	16.0	18.5	18.5	15.0	16.5	16.5	13.0	14.5
9	16.5	11.5	14.0	21.5	16.5	19.0	18.0	15.5	16.5	17.0	14.0	15.0
10	17.5	12.5	15.0	19.5	17.0	18.0	19.5	14.0	16.5	15.0	13.5	14.0
11	18.0	13.5	16.0	20.5	16.0	18.0	20.5	15.0	17.5	16.0	12.5	14.0
12	17.0	15.0	16.0	20.5	16.0	18.0	21.5	16.0	18.5	15.5	13.5	14.5
13	15.0	13.5	14.0	20.0	15.5	18.0	22.0	15.5	18.5	14.0	13.0	13.5
14	15.5	13.0	14.0	20.5	15.5	18.0	21.5	15.5	18.5	14.5	12.5	13.5
15	17.5	12.5	15.0	20.0	16.5	18.5	22.0	16.5	18.5	14.0	12.5	13.0
16	17.5	12.5	15.0	19.5	16.5	18.0	21.5	16.0	18.5	13.5	12.5	13.0
17	18.5	13.5	16.0	20.0	16.5	18.0	22.0	16.0	18.5	14.0	12.0	13.0
18	20.0	14.5	17.5	22.0	17.0	19.5	20.0	16.5	17.5	13.5	12.0	13.0
19	19.5	15.5	17.5	22.0	17.0	19.5	17.0	15.0	16.0	15.0	11.5	13.0
20	19.5	15.5	17.5	21.0	17.0	19.0	18.0	14.0	15.5	14.5	12.0	13.0
21	19.0	14.5	17.0	19.0	16.5	17.5	18.5	14.0	15.5	15.5	13.0	14.0
22	18.0	14.5	16.0	20.5	16.0	18.5	20.0	13.5	16.5	16.5	13.0	14.5
23	17.0	13.0	15.0	20.5	17.0	18.5	20.5	14.0	17.5	15.5	12.0	14.0
24	17.5	13.0	15.0	20.0	16.0	18.0	20.0	16.0	18.0	16.0	12.5	14.0
25	18.0	13.0	15.5	20.5	16.0	18.0	21.0	15.5	18.0	16.0	12.0	14.0
26	18.5	13.5	16.0	21.0	16.0	18.5	20.0	15.5	17.5	16.5	12.0	14.0
27	17.5	14.0	15.5	21.0	16.0	18.5	16.5	14.0	15.5	16.0	12.0	13.5
28	18.0	13.0	15.5	21.5	16.0	19.0	17.5	12.5	14.5	15.0	11.0	12.5
29	16.5	14.0	15.0	20.5	17.0	18.5	18.5	13.5	15.5	14.5	10.0	12.0
30	18.0	12.5	15.0	18.0	16.0	16.5	16.0	15.0	15.5	14.5	9.5	12.0
31	---	---	---	18.0	15.5	16.5	18.0	14.0	16.0	---	---	---
MONTH	20.0	11.0	15.0	22.0	12.5	18.0	22.0	12.5	17.0	19.0	9.5	14.0

12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 47°35'46", long 123°37'23", in SW¼ sec.6, T.24 N., R.7 W., Jefferson County, Hydrologic Unit 17100102, Olympic National Park, on right bank 15.5 mi northeast of Amanda Park, and at mile 5.2.

DRAINAGE AREA.--74.1 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 620 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 17-24, Oct. 26 to Nov. 1, Nov. 5, 6, 14, 15, Jan. 21-29. Water-discharge records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--20 years, 877 ft³/s, 160.72 in/yr, 635,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s Dec. 3, 1982, gage height, 15 ft, from floodmarks, from rating curve extended above 4,000 ft³/s; minimum, 103 ft³/s Oct. 3, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*) from rating curve extended above 4,000 ft³/s:

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 8	0100	10,600	12.16	Nov. 2	1200	*12,200	*12.54

Minimum discharge, 134 ft³/s Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	1400	627	307	255	276	703	645	907	586	344	171
2	134	7110	556	323	240	250	810	775	839	724	275	168
3	138	2790	504	377	224	235	889	1060	835	734	259	152
4	406	1810	469	386	220	234	572	768	1110	714	257	149
5	242	1200	444	382	224	235	489	655	894	634	242	228
6	262	1560	430	359	227	219	548	597	912	567	228	570
7	4540	1560	1760	373	221	207	718	555	1810	601	280	259
8	5560	1040	1750	366	207	198	797	524	1100	677	273	196
9	3030	916	823	339	207	197	947	482	897	691	224	218
10	3100	1560	656	320	216	197	1010	498	950	624	221	183
11	1670	1530	571	309	415	197	2470	463	1030	581	211	167
12	2500	2040	536	312	322	195	1670	418	1140	553	209	891
13	1840	1460	493	359	239	192	1110	432	951	512	204	782
14	1230	950	1830	563	319	198	1050	507	1500	493	198	714
15	925	750	931	560	400	201	962	539	1190	511	196	388
16	765	683	657	458	280	218	863	984	967	503	194	364
17	670	757	553	542	243	245	709	1240	1090	491	190	427
18	600	1710	482	581	222	243	613	1190	1330	481	188	296
19	550	1420	450	508	237	243	536	1130	1340	484	181	247
20	510	1030	427	468	229	244	481	999	1130	467	171	223
21	485	778	409	415	227	240	442	952	995	446	164	209
22	465	671	478	390	260	251	436	1080	868	419	160	196
23	455	1800	489	372	296	415	528	1280	738	397	160	185
24	450	938	424	358	527	357	484	1260	660	364	161	177
25	1640	758	392	335	369	279	430	1170	686	335	163	170
26	690	658	373	318	301	256	452	1060	758	328	157	166
27	580	1020	355	300	276	254	2110	1020	702	326	150	160
28	570	1190	333	285	274	241	1050	939	645	311	146	153
29	500	903	333	274	---	237	700	929	632	310	142	148
30	530	742	377	263	---	573	607	847	580	311	286	143
31	500	---	325	255	---	593	---	871	---	293	272	---
TOTAL	35673	42734	19237	11757	7677	8120	25186	25869	29186	15468	6506	8500
MEAN	1151	1424	621	379	274	262	840	834	973	499	210	283
MAX	5560	7110	1830	581	527	593	2470	1280	1810	734	344	891
MIN	134	658	325	255	207	192	430	418	580	293	142	143
CFSM	15.5	19.2	8.38	5.11	3.70	3.54	11.3	11.3	13.1	6.73	2.83	3.82
IN.	17.91	21.45	9.66	5.90	3.85	4.08	12.64	12.99	14.65	7.77	3.27	4.27
AC-FT	70760	84760	38160	23320	15230	16110	49960	51310	57890	30680	12900	16860

CAL YR 1984 TOTAL 323544 MEAN 884 MAX 7110 MIN 134 CFSM 11.9 IN. 162.43 AC-FT 641700
WTR YR 1985 TOTAL 235913 MEAN 646 MAX 7110 MIN 134 CFSM 8.72 IN. 118.43 AC-FT 467900

12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1965 to September 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
NOV											
15...	1130	785	82	7.60	5.0	1.2	14.9	118	<1	K3	35
MAR											
20...	1300	232	96	7.80	4.5	0.7	12.7	100	<1	<1	46
MAY											
22...	1645	1050	E60	7.50	7.0	1.3	11.9	99	K1	<1	26
AUG											
20...	1315	170	99	7.60	11.0	0.6	10.7	99	K1	20	43

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV											
15...	10	13	0.66	1.5	8	0.1	0.2	25	8.5	1.7	<0.1
MAR											
20...	14	17	0.8	1.8	8	0.1	0.1	32	14	1.0	<0.1
MAY											
22...	2	9.6	0.5	1.1	8	0.1	0.2	24	7.4	0.8	<0.1
AUG											
20...	10	16	0.8	1.8	8	0.1	0.2	33	14	0.8	<0.1

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)
NOV										
15...	5.0	58	46	0.08	117	<0.10	<0.01	<0.2	<0.01	<0.01
MAR										
20...	5.0	55	59	0.08	36	<0.10	0.02	<0.2	<0.01	<0.01
MAY										
22...	3.6	38	38	0.05	98	<0.10	0.11	0.5	0.01	<0.01
AUG										
20...	4.9	57	59	0.08	26	<0.10	0.04	<0.2	<0.01	0.01

E - Estimated value based on values reported by Denver Central Laboratory.
K - Results based on colony count outside the acceptable range (non-ideal colony count).

12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 15...	<0.01	--	--	--	--	--	--	--	--	--
MAR 20...	<0.01	20	<1	8	<0.5	<1	<1	<3	7	6
MAY 22...	<0.01	10	<1	7	<0.5	<1	<1	<3	11	10
AUG 20...	<0.01	10	<1	11	<0.5	<1	1	<3	4	5

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)
NOV 15...	--	--	--	--	--	--	--	--	--	--
MAR 20...	<1	5	<1	<0.1	<10	2	<1	<1	130	<6
MAY 22...	<1	<4	2	<0.1	<10	4	<1	1	67	<6
AUG 20...	2	<4	4	0.1	<10	4	<1	<1	120	<6

DATE	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM DISSOLVED, EXTRACTION (UG/L)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV 15...	--	--	--	--	--	--	--	--	8	16
MAR 20...	24	<1.0	<0.4	<0.7	<0.6	<0.4	0.04	0.03	0	--
MAY 22...	25	--	--	--	--	--	--	--	4	10
AUG 20...	15	--	--	--	--	--	--	--	2	0.9

12039500 QUINAULT RIVER AT QUINAULT LAKE, WA

LOCATION.--Lat 47°27'28", long 123°53'17", in SW¼NE¼ sec.25, T.23 N., R.10 W., Grays Harbor County, Hydrologic Unit 17100102, Quinault Indian Reservation, on left bank at outlet of Quinault Lake, 50 ft downstream from Olympic Highway bridge on U. S. Highway 101, 2.0 mi southwest of Quinault, and at mile 33.4.

DRAINAGE AREA.--264 mi^2.

PERIOD OF RECORD.--October 1911 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 442: Drainage area. WSP 1286: 1915-16(M), 1934, 1936-39(M). WSP 1316: 1923, 1925, 1933. WSP 1635: 1917.

GAGE.--Water-stage recorder. Datum of gage is 184.60 ft above National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). Prior to Sept. 30, 1916, nonrecording gages at sites within 4 mi northeast of present site, at different datum. Oct. 1, 1916, to May 2, 1935, water-stage recorder at site 300 ft downstream from present site at datum 0.36 ft higher than present datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow affected by natural storage in Quinault Lake. No diversions upstream from station.

AVERAGE DISCHARGE.--74 years, 2,849 ft^3/s, 146.55 in/yr, 2,064,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,200 ft^3/s Nov. 4, 1955, gage height, 20.51 ft; minimum, 276 ft^3/s Sept. 12, 1944, gage height, 1.96 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of approximately 22 ft, present datum, discharge, 52,600 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 3	1500	*14,000	*9.79	No other peak greater than base discharge.			

Minimum discharge, 386 ft^3/s Aug. 29, 30, gage height, 2.07 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	417	1950	3980	1680	992	1480	2940	3210	2380	1560	781	572
2	409	4340	3320	1570	965	1400	3050	2910	2330	1520	781	555
3	400	12900	2820	1510	928	1330	3250	3110	2250	1570	756	529
4	418	12300	2450	1500	889	1320	3140	3290	2340	1610	723	503
5	502	9310	2170	1500	879	1340	2770	3130	2470	1620	694	492
6	532	6740	1960	1470	870	1320	2470	2860	2400	1560	667	596
7	1360	7090	2320	1450	910	1270	2370	2610	2910	1480	667	742
8	6200	5910	5380	1440	888	1210	2450	2440	3340	1450	675	735
9	8770	4870	5100	1400	871	1160	2610	2290	3030	1480	660	720
10	9820	4530	4130	1360	903	1110	2880	2130	2760	1500	634	701
11	8280	5800	3380	1280	1250	1070	3650	2050	2640	1460	608	661
12	6630	5790	3010	1260	1820	1040	5720	1920	2660	1410	587	734
13	7200	6290	2720	1210	1760	1020	5110	1810	2670	1360	570	1280
14	6260	5260	4400	1300	1630	989	4310	1780	2790	1290	553	1760
15	4930	4220	6420	1580	1760	968	3800	1760	3130	1250	536	1890
16	3890	3490	4930	1640	1750	958	3430	1830	2960	1210	525	1700
17	3180	3020	3790	1630	1620	959	3070	2290	2740	1130	513	1600
18	2660	3680	3040	1660	1490	962	2780	2740	2760	1170	500	1430
19	2280	5320	2550	1660	1450	976	2490	2950	2910	1140	489	1250
20	2010	5880	2250	1650	1440	1030	2230	2960	2940	1120	478	1110
21	1800	4780	2050	1580	1400	1100	2010	2820	2780	1100	465	1010
22	1630	3850	2060	1490	1370	1180	1880	2740	2590	1070	454	917
23	1510	3800	2150	1420	1370	1430	2120	2830	2350	1040	445	846
24	1440	4190	2120	1350	1640	1870	2240	3040	2110	999	436	789
25	2010	3780	1990	1280	1880	1910	2190	3120	1920	955	427	737
26	2510	3300	1860	1240	1820	1800	2170	3000	1830	911	420	692
27	2380	3590	1780	1190	1700	1750	4070	2870	1810	878	410	654
28	2270	5280	1670	1130	1580	1690	6050	2740	1750	846	403	618
29	2120	5360	1700	1100	---	1600	4900	2660	1690	817	395	587
30	2030	4780	1790	1050	---	1970	3870	2560	1630	800	424	562
31	1960	---	1780	1010	---	2740	---	2410	---	785	541	---
TOTAL	97808	161400	91070	43590	37825	41952	96020	80860	74870	38151	17217	26972
MEAN	3155	5380	2938	1406	1351	1353	3201	2608	2496	1231	555	899
MAX	9820	12900	6420	1680	1880	2740	6050	3290	3340	1620	781	1890
MIN	400	1950	1670	1010	870	958	1880	1760	1630	785	395	492
CFSM	12.0	20.4	11.1	5.33	5.12	5.12	12.1	9.88	9.45	4.66	2.10	3.41
IN.	13.78	22.74	12.83	6.14	5.33	5.91	13.53	11.39	10.55	5.38	2.43	3.80
AC-FT	194000	320100	180600	86460	75030	83210	190500	160400	148500	75670	34150	53500

CAL YR 1984 TOTAL 1086202 MEAN 2968 MAX 15300 MIN 400 CFSM 11.2 IN. 153.06 AC-FT 2154000
WTR YR 1985 TOTAL 807735 MEAN 2213 MAX 12900 MIN 395 CFSM 8.38 IN. 113.82 AC-FT 1602000

12040500 QUEETS RIVER NEAR CLEARWATER, WA
(National stream quality accounting network station)

LOCATION.--Lat 47°32'17", long 124°18'52", in NE¼SW¼ sec.36, T.24 N., R.13 W., Jefferson County, Hydrologic Unit 17100102, Quinault Indian Reservation, on right bank 2.4 mi downstream from mouth of Clearwater River, 0.8 mi east of Queets, and at mile 4.6.

DRAINAGE AREA.--445 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1930 to November 1949, water years 1950-67 (annual maximum), April 1974 to current year.

REVISED RECORDS.--WSP 1316: 1931-49(m).

GAGE.--Water-stage recorder. Datum of gage is 14.5 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Sept. 15, 1930, to Jan. 22, 1935, at datum 4.0 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--30 years (water years 1931-49, 1975-85), 4,259 ft^3/s, 129.97 in/yr, 3,086,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,400 ft^3/s Jan. 22, 1935, gage height, 27.0 ft, from floodmarks, present datum; minimum, 368 ft^3/s Sept. 9, 1944.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 42,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 8	0600	42,100	17.38	Dec. 14	1500	*44,700	*17.73

Minimum discharge, 409 ft^3/s Aug. 29, gage height, 5.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	607	5180	6610	3190	1220	2420	6230	3690	1800	1190	825	731
2	603	15400	5100	2800	1230	2190	5440	3510	1730	1210	816	550
3	611	25900	4180	2670	1120	2030	5480	4290	1660	1370	712	495
4	1140	13900	3570	2640	1050	2540	4490	4220	1920	1350	676	479
5	1600	8980	3130	2510	1050	3320	3650	3610	1950	1370	653	535
6	1020	8440	2810	2440	1170	2920	3290	3230	1740	1250	624	1890
7	13400	10600	8110	2330	2000	2370	3310	3030	3340	1160	681	1600
8	32400	6950	14400	2220	1470	2080	3280	3020	3010	1220	882	993
9	17000	6170	6650	2080	1330	1920	3240	2880	2170	1320	717	796
10	16700	7730	5900	1950	1620	1810	3370	2680	1950	1310	640	739
11	10000	8930	4880	1840	10000	1720	6570	2680	1940	1220	609	643
12	8310	10100	5300	1770	6690	1640	7670	2380	1980	1170	584	1330
13	8270	12800	4900	1740	3660	1560	4740	2240	1920	1110	572	2920
14	7270	7160	26700	2380	3400	1490	3960	2480	2580	1040	555	3960
15	5520	5320	14000	3480	4520	1450	3490	2240	3010	1030	542	2400
16	4310	4330	7440	2380	3310	1400	3140	2440	2200	1050	538	2060
17	3560	3910	5330	2200	2730	1430	2790	2850	1980	1040	532	2690
18	3030	6910	4250	2190	2360	1420	2780	2730	2160	1040	524	1930
19	2670	10400	3610	2070	3350	1400	2550	2550	2250	1020	513	1510
20	2410	8370	3250	2080	3590	1730	2320	2380	2090	1030	491	1290
21	2170	5440	3190	1850	2980	2140	2110	2160	1870	1000	468	1150
22	1990	4330	5300	1710	3190	3400	2240	2190	1750	968	446	1040
23	1860	7210	5680	1640	2970	6330	5780	2330	1590	939	441	954
24	1830	6440	4600	1570	6030	5480	4790	2340	1440	901	446	890
25	6920	6030	3780	1490	4510	4160	3950	2400	1360	835	457	844
26	4960	4970	3350	1420	3450	3420	6050	2120	1400	793	456	796
27	3980	9290	3180	1360	2890	3490	17200	2060	1430	772	439	764
28	4680	14200	2830	1320	2590	3640	9030	1920	1310	762	429	722
29	3970	10800	3260	1260	---	3000	5550	1900	1290	749	417	672
30	4340	9060	5700	1200	---	11300	4280	1890	1270	766	497	652
31	3770	---	3930	1160	---	8100	---	1760	---	774	1190	---
TOTAL	180901	265250	184920	63040	85480	93300	142770	82200	58090	32759	18372	38025
MEAN	5836	8842	5965	2034	3053	3010	4759	2652	1936	1057	593	1268
MAX	32400	25900	26700	3480	10000	11300	17200	4290	3340	1370	1190	3960
MIN	603	3910	2810	1160	1050	1400	2110	1760	1270	749	417	479
CFSM	13.1	19.9	13.4	4.57	6.86	6.76	10.7	5.96	4.35	2.38	1.33	2.85
IN.	15.12	22.17	15.46	5.27	7.15	7.80	11.93	6.87	4.86	2.74	1.54	3.18
AC-FT	358800	526100	366800	125000	169500	185100	283200	163000	115200	64980	36440	75420

CAL YR 1984 TOTAL 1815301 MEAN 4960 MAX 39000 MIN 603 CFSM 11.1 IN. 151.75 AC-FT 3601000
WTR YR 1985 TOTAL 1245107 MEAN 3411 MAX 32400 MIN 417 CFSM 7.67 IN. 104.09 AC-FT 2470000

12040500 QUEETS RIVER NEAR CLEARWATER, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
NOV											
14...	1400	7260	60	7.50	7.0	8.6	13.2	107	K6	K1	21
MAR											
19...	1330	1620	67	7.60	7.0	1.0	12.2	99	K2	<1	28
MAY											
21...	1400	2440	66	7.40	11.5	2.2	11.2	101	K2	<1	27
AUG											
19...	1530	770	78	7.10	17.0	8.0	9.2	94	K5	K10	32

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV											
14...	6	7.0	0.87	2.5	20	0.2	0.2	--	6.2	3.3	<0.1
MAR											
19...	4	9.2	1.1	3.0	19	0.3	0.3	24	8.8	2.8	<0.1
MAY											
21...	2	9.2	0.94	2.4	16	0.2	0.3	25	7.7	2.0	<0.1
AUG											
19...	12	11	1.0	2.9	16	0.2	0.4	20	8.7	1.9	<0.1

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
NOV											
14...	5.7	21	35	0.03	412	0.12	0.02	0.2	0.01	<0.01	<0.01
MAR											
19...	5.7	43	45	0.06	188	<0.10	0.03	0.4	0.01	<0.01	<0.01
MAY											
21...	5.3	39	43	0.05	257	<0.10	0.10	0.2	0.01	<0.01	<0.01
AUG											
19...	4.9	45	43	0.06	94	<0.10	0.04	0.2	<0.01	0.02	<0.01

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12040500 QUEETS RIVER NEAR CLEARWATER, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV											
14...	70	<1	13	<0.5	<1	<1	<3	5	61	6	<4
MAR											
19...	20	<1	15	<0.5	<1	<1	<3	3	20	3	4
MAY											
21...	10	<1	13	<0.5	<1	<1	<3	1	18	<1	<4
AUG											
19...	20	<1	19	<0.5	<1	1	<3	2	28	3	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV											
14...	4	3.5	<10	1	<1	<1	56	<6	11	14	274
MAR											
19...	5	2.9	<10	2	<1	<1	69	<6	6	0	--
MAY											
21...	2	0.6	<10	2	<1	<1	67	<6	21	5	33
AUG											
19...	4	<0.1	<10	4	<1	<1	78	<6	26	2	4.2

12040700 HOH RIVER BELOW MOUNT TOM CREEK, [illegible]R FORKS, WA

LOCATION.--Lat 47°52'07", long 123°53'02", in SE¼SE¼ sec.5, T.27 N., R.9 W., Jefferson County, Hydrologic Unit 17100101, Olympic National Park, on right bank 300 ft below Mount Tom Creek, 2.2 mi northeast of Hoh Ranger Station, and 24 mi southeast of Forks.

DRAINAGE AREA.--97.8 mi².

PERIOD OF RECORD.--May to September 1985.

GAGE.--Water-stage recorder. Elevation of gage is 650 ft, from topographic map.

REMARKS.--Estimated daily discharges: July 5-8, July 10 to Aug. 3, 7-21, Aug 27 to Sept. 19, 24-30. Records fair. No regulation or diversion upstream from station.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge during period May to September, 1,730 ft³/s June 19; minimum daily discharge, 255 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								---	1010	765	900	500
2								---	949	961	820	440
3								---	956	1110	760	430
4								---	1140	1150	747	470
5								---	1130	1150	667	550
6								---	1020	1020	629	1020
7								---	1680	960	690	770
8								---	1440	1000	700	580
9								---	1110	1110	620	490
10								---	1050	1200	580	450
11								---	1150	1120	580	420
12								---	1420	1050	580	680
13								---	1240	970	590	1060
14								---	1670	900	590	1100
15								---	1680	900	590	820
16								---	1300	950	600	680
17								---	1240	970	620	850
18								---	1600	990	620	550
19								1150	1730	1000	550	420
20								1090	1500	1060	500	358
21								1000	1300	1060	440	365
22								1040	1180	1010	443	337
23								1290	1000	990	474	310
24								1370	860	940	538	300
25								1330	847	850	557	300
26								1150	978	810	506	300
27								1140	942	780	480	290
28								1060	854	780	440	275
29								992	847	810	420	265
30								935	790	880	500	255
31								921	---	900	670	---
TOTAL								---	35563	30146	18401	15635
MEAN								---	1185	972	594	521
MAX								---	1730	1200	900	1100
MIN								---	790	765	420	255
AC-FT								---	70540	59790	36500	31010

12040900 SOUTH FORK HOH RIVER NEAR FORKS, WA

LOCATION.--Lat 47°48'25", long 123°59'43", in NW¼NE¼ sec.33, T.27 N., R.10 W., Jefferson County, Hydrologic Unit 17100101, on left bank 400 ft downstream from Gordon Marsh Bridge, 20.5 mi southeast of Forks, and at mile 1.8.

DRAINAGE AREA.--50.4 mi².

PERIOD OF RECORD.--July to September 1985.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 28-30. Records fair. No regulation or diversion upstream from station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 760 ft³/s Sept. 12, gage height, 4.64 ft; minimum daily discharge, 128 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										---	296	166
2										---	257	149
3										---	238	158
4										---	231	167
5										---	217	194
6										---	200	518
7										---	224	296
8										---	235	217
9										---	191	191
10										---	191	176
11										---	185	167
12										348	191	414
13										322	197	524
14										309	194	530
15										317	200	362
16										330	207	326
17										335	204	436
18										339	207	326
19										353	185	260
20										362	164	228
21										357	147	214
22										335	143	200
23										326	150	182
24										309	165	182
25										280	170	182
26										264	161	182
27										257	152	176
28										272	143	148
29										280	136	133
30										300	183	128
31										292	213	---
TOTAL										---	5977	7532
MEAN										---	193	251
MAX										---	296	530
MIN										---	136	128
CFSM										---	3.83	4.98
IN.										---	4.41	5.56
AC-FT										---	11860	14940

12041200 HOH RIVER AT U.S. HIGHWAY 101, NEAR FORKS, WA

LOCATION.--Lat 47°48'25", long 124°14'59", in NE¼NE¼ sec.33, T.27 N., R.12 W., Jefferson County, Hydrologic Unit 17100101, on left bank 250 ft downstream from U.S. Highway 101, 1.0 mi downstream from Hell Roaring Creek, 11.5 mi southeast of Forks, and at mile 15.4.

DRAINAGE AREA.--253 mi^2.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 163.64 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--25 years, 2,547 ft^3/s, 136.71 in/yr, 1,845,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,600 ft^3/s Dec. 17, 1979, gage height, 19.08 ft from rating curve extended above 30,100 ft^3/s on basis of slope-area measurement at gage height 17.74 ft; minimum, 335 ft^3/s Oct. 19, 1983; minimum gage height, 2.40 ft Sept. 27, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 8	0800	18,600	11.39	Nov. 3	0300	*20,900	*12.05

Minimum discharge, 470 ft^3/s Sept. 30; minimum gage height, 2.75 ft Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	543	2730	3220	1520	774	1340	2690	2040	1720	1280	1330	755
2	532	8200	2650	1410	763	1260	2650	2030	1670	1310	1240	656
3	587	14500	2210	1390	735	1180	2920	2730	1640	1630	1150	636
4	931	8400	1920	1410	705	1290	2330	2610	1820	1660	1130	670
5	1280	5710	1730	1410	700	1480	1880	2210	1990	1710	1060	821
6	908	4950	1590	1370	778	1300	1720	1970	1760	1500	974	1700
7	5700	5970	3360	1310	934	1150	1760	1840	2740	1390	1040	1230
8	15400	4140	6000	1280	769	1050	1860	1760	2930	1550	1080	883
9	9720	3530	3390	1230	740	990	1900	1620	2100	1740	942	740
10	9660	3740	2950	1170	812	944	2100	1570	1870	1790	890	686
11	6120	4390	2400	1110	2630	901	3300	1560	1900	1650	862	635
12	5290	4800	2510	1070	2440	866	3950	1430	2320	1550	877	1080
13	5260	5800	2210	1050	1550	830	2770	1370	2100	1420	893	1800
14	4290	3830	7350	1270	1530	804	2340	1510	2550	1330	885	1870
15	3370	3080	5280	1490	2080	782	2150	1430	3010	1320	894	1320
16	2750	2570	3450	1410	1650	763	1960	1570	2290	1410	897	1070
17	2260	2320	2710	1350	1420	765	1760	2180	1990	1440	918	1390
18	1910	3180	2200	1410	1270	770	1670	2370	2430	1460	937	1130
19	1710	4070	1910	1360	1370	765	1570	2230	2770	1500	876	924
20	1560	3620	1770	1340	1490	827	1440	2100	2530	1560	769	809
21	1440	2720	1780	1240	1400	1050	1310	1880	2200	1570	699	767
22	1320	2250	2430	1160	1480	1380	1390	1860	1940	1510	661	756
23	1250	4140	2520	1090	1460	2220	2440	2180	1670	1460	678	705
24	1260	3910	2110	1050	2670	2200	2190	2410	1460	1420	740	668
25	3880	3320	1800	1000	2130	1660	1860	2440	1380	1260	807	665
26	3030	2790	1690	953	1720	1410	2470	2080	1450	1190	774	663
27	2270	4020	1630	915	1510	1350	6290	2010	1530	1140	716	627
28	2560	5640	1500	881	1400	1310	4410	1870	1410	1150	664	543
29	2070	4680	1660	840	---	1220	3050	1790	1400	1180	617	510
30	2320	4010	2360	805	---	3130	2370	1720	1370	1300	727	483
31	1930	---	1740	779	---	2950	---	1610	---	1320	1010	---
TOTAL	103111	137010	82030	37073	38910	39937	72500	59980	59940	44700	27737	27192
MEAN	3326	4567	2646	1196	1390	1288	2417	1935	1998	1442	895	906
MAX	15400	14500	7350	1520	2670	3130	6290	2730	3010	1790	1330	1870
MIN	532	2250	1500	779	700	763	1310	1370	1370	1140	617	483
CFSM	13.1	18.1	10.5	4.73	5.49	5.09	9.55	7.65	7.90	5.70	3.54	3.58
IN.	15.16	20.15	12.06	5.45	5.72	5.87	10.66	8.82	8.81	6.57	4.08	4.00
AC-FT	204500	271800	162700	73530	77180	79220	143800	119000	118900	88660	55020	53940

CAL YR 1984 TOTAL 972357 MEAN 2657 MAX 18700 MIN 532 CFSM 10.5 IN. 142.97 AC-FT 1929000
WTR YR 1985 TOTAL 730120 MEAN 2000 MAX 15400 MIN 483 CFSM 7.91 IN. 107.35 AC-FT 1448000

BEST COPY AVAILABLE

12043000 CALAWAH RIVER NEAR FORKS, WA

LOCATION.--Lat 47°57'37", long 124°23'30", in NW¼SW¼ sec.4, T.28 N., R.13 W., Clallam County, Hydrologic Unit 17100101, on left bank 30 ft downstream from U.S. Highway 101 bridge, 0.8 mi northwest of Forks, and at mile 6.6.

DRAINAGE AREA.--129 mi².

PERIOD OF RECORD.--November 1897 to December 1901, October to December 1975 (discharge measurements and peak discharges), January 1976 to September 1980, March 1984 to current year. Monthly and peak discharge only, November 1897 and August 1898, published in WSP 1316. Published as Calowa River at Forks, November 1897 to December 1899; as Calowa River near Forks, 1900; and as Kalawa River near Forks, 1901.

REVISED RECORDS.--WSP 1316: 1898-1902. WSP 1736: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 201.58 ft above National Geodetic Vertical Datum of 1929. November 1897 to December 1901, nonrecording gage at same site but at different datum; October to December 1975, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 17 to Jan. 8, Jan. 29 to Mar. 6, Apr. 11-30, Sept. 5-30. Records good, except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--8 years (water years 1899-1901, 1977-80, 1985), 1,000 ft³/s, 105.27 in/yr, 724,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,900 ft³/s Dec. 17, 1979, gage height, 18.98 ft, from rating curve extended above 10,000 ft³/s on basis of step-backwater analysis; minimum, 15 ft³/s Sept. 28, 1899.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 3	0200	*15,300	*14.43	No other peak greater than base discharge.			

Minimum discharge, 50 ft³/s Aug. 27-30, gage height, 2.53 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	1640	1600	980	300	570	1780	961	258	152	84	89
2	90	5510	1300	850	310	530	1510	876	249	143	83	67
3	90	9650	1050	750	280	510	1420	1040	242	141	79	60
4	146	4730	890	720	260	580	1120	1260	265	136	76	56
5	165	2600	770	700	260	670	928	1260	252	138	76	63
6	122	2180	710	680	300	604	820	1060	242	140	72	240
7	1770	2690	2000	660	490	546	787	935	358	130	104	210
8	6730	1880	3400	630	370	500	734	849	354	126	123	120
9	3800	1480	1700	594	340	472	684	745	286	122	97	98
10	3750	1670	1450	549	400	451	649	731	258	119	90	88
11	2130	2100	1250	514	2100	430	1400	706	242	117	81	80
12	1600	2230	1300	439	1500	405	1600	634	236	115	74	150
13	1630	2920	1250	476	900	382	1100	602	223	112	70	380
14	1520	1820	6400	673	860	370	970	649	296	110	68	510
15	1140	1350	3200	867	1100	354	850	577	332	108	64	320
16	894	1070	1850	655	800	343	780	545	272	106	61	280
17	724	990	1250	592	700	343	700	514	249	103	60	350
18	594	1700	1050	561	600	336	680	468	233	101	60	230
19	522	2500	900	326	820	336	610	438	220	97	58	190
20	463	2000	820	520	860	366	560	409	211	95	58	155
21	422	1400	780	471	750	405	520	389	202	92	56	140
22	385	1100	1300	438	770	536	560	362	196	90	55	125
23	367	1700	1400	412	750	1330	1350	354	190	88	55	115
24	352	1600	1100	390	1250	1270	1200	343	184	88	53	105
25	1170	1450	950	370	1000	983	1000	332	179	88	51	100
26	1170	1250	830	353	850	816	1300	317	173	84	51	96
27	999	2400	780	342	720	732	3600	303	168	82	50	92
28	1120	3400	730	328	630	672	2000	292	165	81	50	87
29	961	2600	800	318	---	658	1350	289	162	80	50	81
30	1080	2200	1550	300	---	2260	1110	286	162	78	84	78
31	943	---	1250	290	---	2190	---	268	---	79	154	---
TOTAL	36940	71810	45610	16998	20270	20950	33672	18794	7059	3341	2247	4755
MEAN	1192	2394	1471	548	724	676	1122	606	235	108	72.5	159
MAX	6730	9650	6400	980	2100	2260	3600	1260	358	152	154	510
MIN	90	990	710	290	260	336	520	268	162	78	50	56
CFSM	9.24	18.6	11.4	4.25	5.61	5.24	8.70	4.70	1.82	.84	.56	1.23
IN.	10.65	20.71	13.15	4.90	5.85	6.04	9.71	5.42	2.04	.96	.65	1.37
AC-FT	73270	142400	90470	33720	40210	41550	66790	37280	14000	6630	4460	9430

WTR YR 1985 TOTAL 282446 MEAN 774 MAX 9650 MIN 50 CFSM 6.00 IN. 81.45 AC-FT 560200

12043163 SOOES RIVER BELOW MILLER CREEK, NEAR OZETTE, WA

LOCATION.--Lat 48°15'58", long 124°37'30", in NE¼NE¼ sec. 21, T.32 N., R.15 W., Clallam County, Hydrologic Unit 17100101, on right bank at downstream side on Crown Zellerback logging road, 0.6 mi downstream from Miller Creek, and 8 mi north of Ozette.

DRAINAGE AREA.--32.0 mi².

PERIOD OF RECORD.--March 1976 to current year.

REVISED RECORDS.--WDR WA-77-1: 1976(M). WDR WA-83-1: 1982(M,P).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 70 ft, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 3 to Jan. 8, Apr. 15 to May [illegible], May 19 to July 2. Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--9 years, 203 ft³/s, 86.15 in/yr, 147,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,610 ft³/s, Jan. 23, 1982, gage height, 15.08 ft; minimum, 5.4 ft³/s Aug. 26-30, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 14	unknown	*2,450	*11.12				

Minimum discharge, 5.4 ft³/s Aug. 26-30, gage height, 5.19 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	269	400	110	78	140	441	132	33	20	9.8	30
2	19	740	290	100	89	[illegible]	332	110	31	18	9.8	18
3	18	1550	230	97	74	[illegible]	258	143	30	17	9.8	14
4	35	980	190	96	65	[illegible]	224	152	33	17	9.3	12
5	31	650	150	105	67	450	189	136	32	18	9.0	23
6	25	440	125	120	88	233	158	137	31	19	9.1	60
7	812	480	350	125	157	178	134	162	48	18	18	34
8	1680	380	740	120	116	142	117	180	46	15	17	24
9	992	290	350	112	99	125	104	160	33	14	14	20
10	712	340	340	103	117	112	95	139	30	14	14	16
11	630	400	310	98	898	102	335	124	28	14	14	15
12	331	410	370	96	359	95	320	101	27	14	10	23
13	239	440	300	93	181	90	177	101	26	14	9.8	80
14	272	360	1720	122	173	85	159	124	52	14	9.8	145
15	201	260	900	153	184	80	140	93	64	13	9.8	78
16	145	200	600	111	152	77	122	80	50	13	9.1	116
17	117	165	380	100	147	74	110	74	40	14	9.0	117
18	102	170	280	94	122	71	105	66	35	14	9.0	59
19	90	290	230	91	[illegible]	70	95	58	31	12	7.6	41
20	79	300	200	97	182	85	87	53	28	12	7.2	33
21	71	230	215	90	175	156	82	49	27	11	6.9	31
22	63	180	320	85	257	254	86	47	26	11	6.9	28
23	57	340	360	80	196	466	230	45	25	11	6.9	27
24	58	320	320	77	451	298	155	43	24	12	6.9	22
25	623	350	260	75	249	231	120	42	23	12	6.9	21
26	257	330	220	73	181	182	250	40	22	11	6.7	21
27	208	740	190	71	145	198	630	38	21	11	5.9	19
28	243	780	170	71	143	170	300	37	21	10	6.4	18
29	150	590	150	71	---	137	210	37	20	9.0	5.4	18
30	199	560	140	67	---	1030	160	36	21	9.0	10	18
31	147	---	125	67	---	532	---	34	---	9.2	102	---
TOTAL	8624	13534	10925	2970	5342	6305	5925	2773	958	420.2	386.0	1181
MEAN	278	451	352	95.8	191	203	198	89.5	31.9	13.6	12.5	39.4
MAX	1680	1550	1720	153	898	1030	630	180	64	20	102	145
MIN	18	165	125	67	67	70	82	34	20	9.0	5.4	12
CFSM	[illegible]	14.1	11.0	2.99	5.97	6.34	6.19	2.80	.00	.42	.39	1.23
IN.	[illegible]	15.73	12.70	3.45	6.21	7.33	6.89	3.22	1.11	.49	.45	1.37
AC-FT	[illegible]	26840	21670	5890	10600	12510	11750	5500	1900	833	766	2340

CAL YR 1984 TOTAL 89624 MEAN 245 MAX 2580 MIN 10 CFSM 7.66 IN. 104.19 AC-FT 177800
WTR YR 1985 TOTAL 59343.2 MEAN 163 MAX 1720 MIN 5.4 CFSM 5.09 IN. 68.99 AC-FT 117700

12043300 HOKO RIVER NEAR SEKIU, WA

LOCATION.--Lat 48°14'30", long 124°22'57", in NE¼SW¼ sec.28, T.32 N., R.13 W., Clallam County, Hydrologic Unit 17110021, on right bank 2.2 mi upstream from Little Hoko River, and 4.0 mi southwest of Sekiu.

DRAINAGE AREA.--51.2 mi².

PERIOD OF RECORD.--July 1962 to September 1974, water years 1976-78 (annual maximum), water years 1983 to current year (June to October seasonal records).

GAGE.--Water-stage recorder. Elevation of gage is 50 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--12 years (water years 1963-74), 408 ft³/s, 108.22 in/yr, 295,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s Dec. 25, 1972, gage height, 14.17 ft, from rating curve extended above 2,100 ft³/s, on basis of slope-area measurement at gage height, 12.49 ft; minimum, 12 ft³/s Aug. 30, 1967, part or all of each day Aug. 25-30, 1985; minimum gage height, 0.96 ft Aug. 29, 30, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period June to October 1985, 1,910 ft³/s Oct. 27, gage height, 5.42 ft; minimum, 12 ft³/s part or all of each day Aug. 25-30; minimum gage height, 0.96 ft Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1985
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	60	37	20	29	19
2	58	35	20	21	19
3	56	34	19	18	19
4	65	33	18	17	19
5	62	35	17	28	18
6	59	35	18	67	19
7	88	32	30	41	20
8	86	31	28	31	18
9	64	29	24	25	18
10	57	27	24	22	18
11	53	27	21	20	62
12	51	27	19	28	65
13	49	26	18	56	53
14	110	25	16	77	560
15	135	25	16	79	502
16	87	25	15	69	575
17	72	25	15	88	611
18	62	24	14	55	486
19	56	23	14	44	854
20	54	22	14	38	644
21	50	21	13	35	780
22	49	21	13	33	1400
23	47	21	13	31	1130
24	45	21	13	28	1010
25	43	21	13	26	798
26	41	20	12	24	883
27	41	19	12	23	1700
28	40	19	12	20	1310
29	39	18	12	19	702
30	39	18	20	19	695
31	--	19	54	---	540
TOTAL	1818	795	567	1111	15547
MEAN	60.6	25.6	18.3	37.0	502
MAX	135	37	54	88	1700
MIN	39	18	12	17	18
CFSM	1.18	.50	.36	.72	9.80
IN.	1.32	.58	.41	.81	11.30
AC-FT	3610	1580	1120	2200	30840

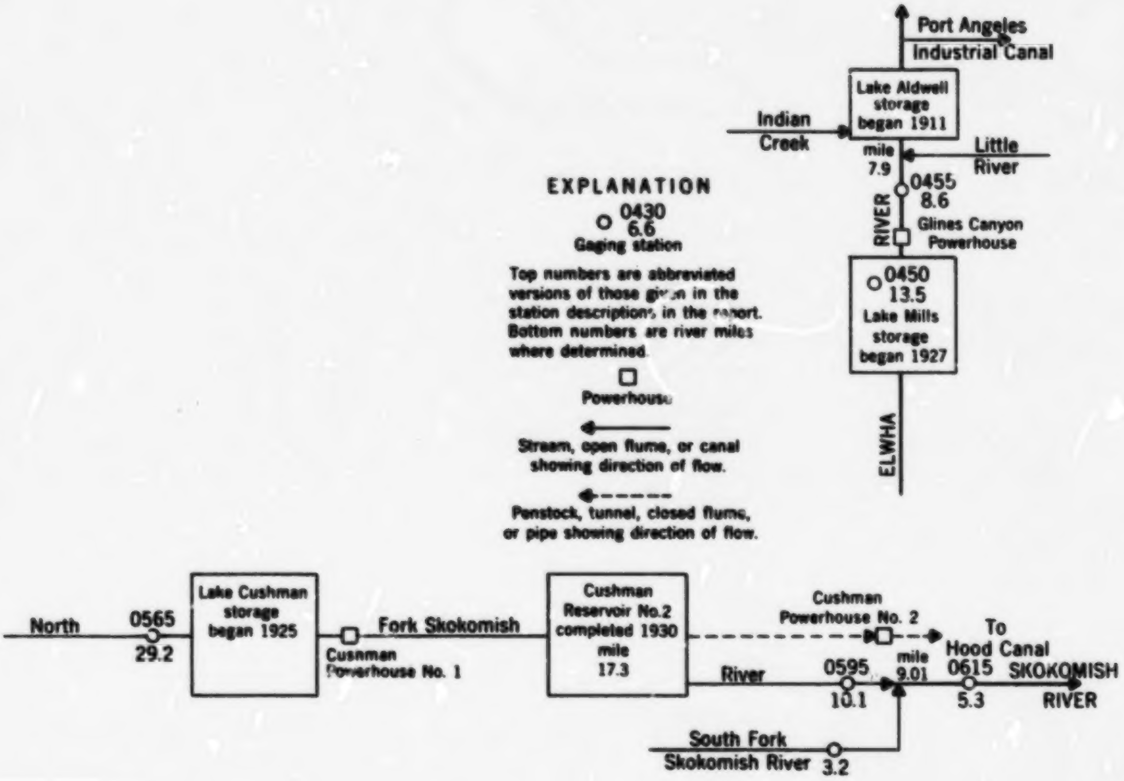
Port Angeles
Industrial Canal
Lake Aldwell storage began 1911
Indian Creek
mile 7.9
Little River
0455
8.6
RIVER
Glines Canyon Powerhouse
0450
13.5
Lake Mills storage began 1927
ELWHA
EXPLANATION
0430
6.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
North
0565
29.2
Lake Cushman storage began 1925
Cushman Powerhouse No. 1
Fork Skokomish
Cushman Reservoir No.2 completed 1930 mile 17.3
Cushman Powerhouse No. 2
To Hood Canal
River
0595
10.1
mile 9.01
0615
5.3
SKOKOMISH RIVER
South Fork Skokomish River
3.2

Figure 8.--Gaging stations in Elwha and Skokomish River basins.

12045000 LAKE MILLS AT GLINES CANYON, NEAR PORT ANGELES, WA

LOCATION.--Lat 48°00'08", long 123°35'55", in SW¼SE¼ sec.17, T.29 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Park, at Glines Canyon Dam on Elwha River, 2 mi upstream from Griff Creek, 4.1 mi south of Elwha, and 11 mi southwest of Port Angeles.

DRAINAGE AREA.--245 mi².

PERIOD OF RECORD.--April 1927 to current year. Prior to October 1950, monthly change in contents only, published in WSP 1316.

GAGE.--Nonrecording gage. Datum of gage is 19.67 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete dam, completed in 1927; storage began Apr. 1, 1927. Usable capacity, 7,460 acre-ft between gage heights 592.0 ft, normal minimum operation level, and 610.0 ft, top of spillway gates. Storage below gage height 592.0 ft, 31,190 acre-ft. Figures given herein represent total contents. Water is used for power production by Crown Zellerbach Corp.

COOPERATION.--Gage-height record furnished by Crown Zellerbach Corp.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,940 acre-ft Dec. 22, 1936, gage height, 613.0 ft; minimum observed since reservoir first filled in May 1927, 24,290 acre-ft Nov. 14, 1929, gage height, 574.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 38,951 acre-ft April 10, July 9, gage height. 610.7 ft; minimum observed, 36,782 acre-ft Jan. 5, gage height, 605.6 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	607.0	37,370	—
Oct. 31	608.0	37,790	+420
Nov. 30	608.6	38,048	+258
Dec. 31	608.1	37,833	-215
CAL YR 1984	—	—	+43
Jan. 31	609.8	38,564	+731
Feb. 28	609.9	38,607	+43
Mar. 31	609.8	38,564	-43
Apr. 30	609.8	38,564	0
May 31	610.1	38,693	+129
June 30	610.3	38,779	+86
July 31	609.1	38,263	-516
Aug. 31	609.6	38,478	+215
Sept. 30	606.8	37,286	-1,192
WTR YR 1985	—	—	-84

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA
(National stream quality accounting network station)

LOCATION.--Lat 48°03'18", long 123°34'55", in NE¼NW¼ sec.33, T.30 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Forest, on right bank 300 ft upstream from site of McDonald Bridge (now removed), 0.7 mi upstream from Little River, 4.9 mi below Glines Canyon Dam, 8 mi southwest of Port Angeles, and at mile 8.6.

DRAINAGE AREA.--269 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to December 1901, October 1918 to current year. Published as "at McDonald" October 1897 to December 1901.

REVISED RECORDS.--WSP 1246: Drainage area. WSP 1286: 1898, 1899(M), 1900-1902, 1919, 1920-31(M), 1932, 1933(M). WSP 1566: 1957(M).

GAGE.--Water-stage recorder. Datum of gage is 200.00 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1897, to Dec. 31, 1901, nonrecording gage at McDonald Bridge at different datum. Dec. 9, 1918, to May 1, 1936, water-stage recorder under McDonald Bridge at datum 7.4 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. Water is diverted through Glines Canyon powerhouse and returned to river upstream from gage. Flow partly regulated by Lake Mills 4.9 mi upstream (see sta 12045000).

AVERAGE DISCHARGE.--71 years (water years 1898-1901, 1919-1985), 1,511 ft^3/s, 76.28 in/yr, 1,095,000 acre-ft/yr, adjusted for storage since April 1927.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,600 ft^3/s Nov. 18, 1897, gage height, 14.5 ft, from graph based on gage readings, site and datum then in use, from rating curve extended above 3,300 ft^3/s on basis of two determinations of flow over dam at discharge 26,700 ft^3/s and 30,100 ft^3/s, referred to 1897 datum; minimum daily discharge, 10 ft^3/s Oct. 3, 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,760 ft^3/s Nov. 3, gage height, 15.72 ft; minimum, 139 ft^3/s Aug. 15, gage height, 9.03 ft; minimum daily, 294 ft^3/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	358	1220	1650	796	616	687	889	1130	2030	1380	790	469
2	330	3980	1110	845	635	536	1150	1210	2130	1420	845	494
3	324	5960	1060	889	558	585	1380	1610	2230	1640	812	513
4	347	3710	1110	733	652	625	1110	1520	2140	1580	735	453
5	439	2500	1140	759	610	626	988	1250	2330	1600	746	453
6	386	2430	1080	494	653	582	935	1240	2020	1440	664	571
7	1720	2880	1320	451	480	530	1020	1180	2690	1220	659	599
8	4450	2100	1910	643	800	523	1190	1100	2630	1500	656	595
9	2750	1850	1500	607	641	699	1270	1030	2110	1560	653	489
10	3740	1960	1400	609	424	366	1690	1070	2050	1590	610	444
11	1930	2370	1220	671	832	476	2130	1050	2080	1340	525	393
12	2070	2150	1170	741	835	478	2540	825	2580	1330	523	414
13	2700	2520	1160	500	599	424	1940	880	2350	1300	580	704
14	2330	2000	1960	779	662	503	1920	979	2560	1170	581	815
15	1470	1720	1840	916	657	521	1910	963	2750	1130	539	653
16	1270	1570	1610	861	663	587	1810	1150	2200	1190	551	483
17	1040	1390	1300	862	432	451	1580	1850	2120	1210	551	509
18	914	1720	1280	1010	524	579	1470	2360	2370	1150	459	532
19	914	1760	1220	962	583	523	1290	2680	2750	1130	478	487
20	914	1800	1170	1020	639	462	1250	2550	2580	1140	508	350
21	884	1570	1060	903	608	546	1100	2300	2260	1140	501	391
22	773	1280	982	861	723	563	1030	2240	2130	1150	446	338
23	708	2320	972	846	737	651	1180	2630	1760	1140	438	377
24	708	1960	866	854	513	761	1120	2900	1600	1080	438	326
25	1730	1720	861	720	757	681	915	2760	1580	1040	438	330
26	1470	1550	851	667	650	638	890	2420	1570	992	457	352
27	915	1940	758	664	730	615	1730	2510	1740	884	453	358
28	886	2370	795	697	655	741	1770	2330	1510	770	405	339
29	906	2070	759	672	---	545	1370	2250	1500	853	442	294
30	950	1630	844	624	---	484	1250	2000	1360	741	453	339
31	856	---	799	581	---	636	---	1900	---	889	505	---
TOTAL	41182	66000	36757	23237	17868	17624	41817	53867	63710	37699	17441	13864
MEAN	1328	2200	1186	750	638	569	1394	1738	2124	1216	563	462
MAX	4450	5960	1960	1020	835	761	2540	2900	2750	1640	845	815
MIN	324	1220	758	451	424	366	889	825	1360	741	405	294
AC-FT	81680	130900	72910	46090	35440	34960	82940	106800	126400	74780	34590	27500
MEAN†	1335	2205	1182	761	639	568	1394	1738	2126	1207	566	442
CFSM†	4.96	8.20	4.39	2.83	2.38	2.11	5.18	6.46	7.90	4.49	2.10	1.64
IN.†	5.72	9.14	5.07	3.26	2.47	2.43	5.78	7.45	8.82	5.18	2.43	1.83
AC-FT†	82100	131200	72700	46820	35480	34920	82940	106900	126500	74260	34800	26310

CAL YR 1984 TOTAL 558651 MEAN 1526 MAX 11500 MIN 264 AC-FT 1108000 MEAN† 1527 CFSM† 5.68 IN.† 77.23 AC-FT† 1108000
WTR YR 1985 TOTAL 431066 MEAN 1181 MAX 5960 MIN 294 AC-FT 855000 MEAN† 1181 CFSM† 4.39 IN.† 59.59 AC-FT† 854900

† Adjusted for change in contents in Lake Mills.

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-60, 1962-70, 1972 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April 1976 to August 1977.

REMARKS.--Prior to 1962 published as Elwha River near Port Angeles. October 1971 to September 1974 published as Elwha River below Little River, near Port Angeles.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 29...	1100	1850	83	7.50	5.0	4.6	13.2	104	K5	K5	40
JAN 30...	1200	564	E110	7.70	3.0	0.5	13.6	100	<1	K26	49
MAR 07...	0945	552	116	8.00	3.0	0.8	13.2	98	K8	<1	53
MAY 16...	1000	1140	95	7.70	10.0	1.1	11.8	105	K1	K1	43
JUL 18...	1345	1060	84	8.20	14.0	0.8	9.5	92	<1	K15	34
SEP 26...	1020	372	98	7.20	11.0	1.3	10.2	93	K1	K8	42

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 29...	7	14	1.2	1.9	9	0.1	0.4	33	8.5	0.7	<0.1
JAN 30...	7	17	1.6	2.5	10	0.2	0.2	42	11	1.1	<0.1
MAR 07...	9	18	1.8	3.0	11	0.2	0.2	44	10	1.2	<0.1
MAY 16...	1	15	1.3	2.2	10	0.2	0.4	42	9.6	0.7	<0.1
JUL 18...	4	12	0.9	1.6	9	0.1	0.6	30	6.8	0.6	<0.1
SEP 26...	--	15	1.2	2.2	10	0.2	0.4	43	9.2	1.0	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV 29...	6.1	48	53	0.06	240	<0.10	0.01	0.2	<0.01	<0.01	<0.01
JAN 30...	6.8	63	66	0.09	96	<0.10	<0.01	<0.2	<0.01	<0.01	<0.01
MAR 07...	7.1	65	68	0.09	97	<0.10	<0.01	0.3	0.01	0.01	<0.01
MAY 16...	5.9	57	60	0.08	175	<0.10	0.03	<0.2	0.02	<0.01	<0.01
JUL 18...	5.1	43	46	0.06	123	<0.10	0.03	<0.2	<0.01	<0.01	<0.01
SEP 26...	6.0	56	61	0.08	56	<0.10	0.05	0.2	<0.01	<0.01	0.02

E - Estimated value based on values reported by Denver Central Laboratory.
K - Results based on colony count outside the acceptable range (non-ideal colony count).

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 29...	20	<1	11	<0.5	<1	2	<3	3	15	2	<4
JAN 30...	10	<1	8	<0.5	<1	2	<3	3	8	<1	<4
MAR 07...	<10	<1	11	<0.5	<1	<1	<3	2	10	<1	<4
MAY 16...	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	<10	<1	6	<0.5	<1	<1	<3	1	<3	1	<4
SEP 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDIMENT, SUS-PENDED (MG/L)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY)
NOV 29...	4	<0.1	<10	2	<1	1	95	<6	8	4	20
JAN 30...	--	0.6	<10	<1	<1	<1	120	<6	14	1	1.5
MAR 07...	<1	<0.1	<10	2	<1	<1	130	<6	12	4	6.0
MAY 16...	--	--	--	--	--	--	--	--	--	4	12
JUL 18...	2	<0.1	<10	1	<1	<1	84	<6	7	2	5.7
SEP 26...	--	--	--	--	--	--	--	--	--	3	3.0

12048000 DUNGENESS RIVER NEAR SEQUIM, WA

LOCATION.--Lat 48°00'52", long 123°07'53", in NW¼NE¼ sec.13, T.29 N., R.4 W., Clallam County, Hydrologic Unit 17110020, on right bank 1.0 mi upstream from Canyon Creek, 4.8 mi southwest of Sequim, and at mile 11.8.

DRAINAGE AREA.--156 mi^2.

PERIOD OF RECORD.--June 1923 to September 1930, June 1937 to current year. July 1897 to July 1898 at site downstream from Canyon Creek, published as "near Sequim," records not equivalent.

REVISED RECORDS.--WSP 1316: 1924-25(M), 1927(M). WSP 1932: 1957, 1958-59(M), 1960.

GAGE.--Water-stage recorder. Datum of gage is 569.3 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). June 8, 1923, to Sept. 30, 1930, nonrecording gage just above fish-hatchery diversion 0.5 mi downstream at different datum. June 19 to Aug. 12, 1937, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--55 years (water years 1924-30, 1938-85), 391 ft^3/s, 34.04 in/yr, 283,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,820 ft^3/s Nov. 27, 1949, gage height, 8.58 ft, from floodmarks, from rating curve extended above 2,000 ft^3/s on basis of slope-area measurement of peak flow; minimum, 65 ft^3/s Jan. 31 to Feb. 3, 1979, during period of ice effect.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 3	0200	*1,610	*5.14				

Minimum discharge, 97 ft^3/s Sept. 30, gage height, 2.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	279	274	155	162	161	171	212	550	366	281	127
2	106	805	253	159	154	153	212	251	622	408	266	122
3	106	1160	244	160	135	147	236	301	659	479	236	118
4	112	629	234	166	135	146	212	281	622	453	226	118
5	122	426	226	176	164	143	199	266	646	428	219	125
6	116	378	215	176	146	139	205	254	556	379	205	148
7	193	420	217	177	145	133	222	240	835	366	208	140
8	413	348	251	175	140	129	258	240	765	408	199	130
9	372	302	227	172	138	128	305	229	603	438	189	140
10	628	341	218	168	136	127	357	226	556	428	205	143
11	462	412	205	163	162	126	408	222	591	403	192	135
12	354	424	204	162	170	125	428	212	779	370	186	143
13	356	419	194	163	147	125	394	212	717	357	183	189
14	286	348	283	189	153	129	413	233	779	326	180	189
15	247	305	324	214	172	130	418	240	779	318	177	168
16	227	279	275	203	159	135	403	305	622	322	177	148
17	209	264	245	215	150	145	361	479	574	318	171	145
18	194	296	227	241	146	150	322	634	665	318	168	138
19	184	286	226	253	149	156	297	698	765	313	165	127
20	177	281	218	253	147	156	273	672	717	313	159	120
21	168	258	200	233	146	148	251	628	634	313	154	118
22	160	242	193	219	154	143	236	609	574	305	148	115
23	162	423	189	209	164	189	233	758	506	305	145	111
24	189	457	183	202	174	189	215	894	442	293	138	106
25	297	371	180	192	163	162	202	807	408	269	140	104
26	297	324	179	183	156	151	192	678	413	251	138	102
27	242	375	177	180	149	145	240	659	453	243	135	102
28	218	384	169	175	152	143	251	622	422	240	135	102
29	193	336	169	171	---	140	222	585	418	240	130	99
30	184	306	164	159	---	140	215	539	379	243	130	97
31	168	---	157	161	---	143	---	495	---	266	138	---
TOTAL	7250	11878	6720	5824	4268	4476	8351	13681	18051	10479	5523	3869
MEAN	234	396	217	188	152	144	278	441	602	338	178	129
MAX	628	1160	324	253	174	189	428	894	835	479	281	189
MIN	106	242	157	155	135	125	171	212	379	240	130	97
CFSM	1.50	2.54	1.39	1.21	.97	.92	1.78	2.83	3.86	2.17	1.14	.83
IN.	1.73	2.83	1.60	1.39	1.02	1.07	1.99	3.26	4.30	2.50	1.32	.92
AC-FT	14380	23560	13330	11550	8470	8880	16560	27140	35800	20790	10950	7670

CAL YR 1984 TOTAL 137550 MEAN 376 MAX 2580 MIN 106 CFSM 2.41 IN. 32.80 AC-FT 272800
WTR YR 1985 TOTAL 100370 MEAN 275 MAX 1160 MIN 97 CFSM 1.76 IN. 23.93 AC-FT 199100

12054000 DUCKABUSH RIVER NEAR BRINNON, WA

LOCATION.--Lat 47°41'03", long 123°00'37", in NW¼SW¼ sec.1, T.25 N., R.3 W., Jefferson County, Hydrologic Unit 17110018, Olympic National Forest, on left bank 5.2 mi west of Brinnon, and at mile 4.5.

DRAINAGE AREA.--66.5 mi^2.

PERIOD OF RECORD.--August to December 1910 (gage height only), December 1910 to December 1911, June 1938 to current year. Published as "near Duckabush" water years 1910-11.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.49 ft above National Geodetic Vertical Datum of 1929. Aug. 19, 1910, to Dec. 31, 1911, nonrecording gage at same site at different datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--47 years (water years 1939-85), 420 ft^3/s, 85.77 in/yr, 304,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,960 ft^3/s Nov. 26, 1949, gage height, 10.06 ft, from rating curve extended above 4,800 ft^3/s on basis of slope-area measurement of peak flow; minimum, 45 ft^3/s Oct. 26, 28, 29, 1942; minimum gage height, 1.25 ft Oct. 2-4, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 3	0200	*2,390	*5.29				

Minimum discharge, 68 ft^3/s Oct. 2-4, gage height, 1.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	192	324	118	127	135	355	270	513	299	169	86
2	68	1110	281	118	120	129	443	310	507	322	164	83
3	69	1820	250	118	113	124	463	420	510	375	147	77
4	75	1100	229	135	108	124	364	347	581	370	138	75
5	88	686	212	144	111	130	308	300	572	350	131	75
6	79	647	202	144	110	127	299	275	521	306	124	110
7	471	773	269	144	108	121	346	255	1050	289	119	95
8	937	555	613	145	104	117	424	243	810	327	117	87
9	840	466	429	143	102	115	500	227	577	344	111	102
10	1440	684	335	137	104	113	628	218	523	329	112	94
11	744	1000	282	133	139	111	993	210	557	301	108	88
12	705	1620	254	130	170	111	920	193	686	285	105	333
13	762	1250	227	132	139	110	655	188	626	268	103	580
14	490	723	592	188	144	109	609	208	670	250	100	576
15	358	501	592	242	181	110	561	218	684	243	99	327
16	291	397	390	207	157	113	517	328	542	243	97	215
17	248	414	313	237	142	129	453	576	528	231	96	175
18	218	1340	262	279	133	137	392	721	623	222	95	148
19	197	855	237	276	132	141	338	727	706	220	94	129
20	182	655	223	258	130	139	298	673	663	220	92	117
21	169	472	206	229	126	137	268	582	564	212	89	108
22	158	387	183	207	132	135	250	574	510	200	85	101
23	151	574	173	188	144	180	268	733	436	191	83	96
24	158	537	163	181	166	184	247	804	376	179	82	91
25	344	421	155	171	159	159	226	697	347	164	83	88
26	249	354	148	162	146	152	221	586	367	157	82	85
27	201	467	143	154	138	150	412	594	381	154	78	82
28	178	668	136	146	134	148	417	585	348	149	76	79
29	160	484	135	140	---	145	320	620	338	145	74	76
30	156	388	131	132	---	182	281	495	309	146	84	74
31	145	---	123	128	---	260	---	458	---	147	107	---
TOTAL	10400	21540	8212	5266	3719	4277	12776	13635	16425	7638	3244	4452
MEAN	335	718	265	170	133	138	426	440	548	246	105	148
MAX	1440	1820	613	279	181	260	993	804	1050	375	169	580
MIN	68	192	123	118	102	109	221	188	309	145	74	74
CFSM	5.04	10.8	3.98	2.56	2.00	2.08	6.41	6.62	8.24	3.70	1.58	2.23
IN.	5.82	12.05	4.59	2.95	2.08	2.39	7.15	7.63	9.19	4.27	1.81	2.49
AC-FT	20630	42720	16290	10450	7380	8480	25340	27050	32580	15150	6430	8830

CAL YR 1984 TOTAL 152131 MEAN 416 MAX 2430 MIN 68 CFSM 6.26 IN. 85.11 AC-FT 301800
WTR YR 1985 TOTAL 111584 MEAN 306 MAX 1820 MIN 68 CFSM 4.60 IN. 62.42 AC-FT 221300

12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA

LOCATION.--Lat 47°30'52", long 123°19'43", in NW¼ sec.4, T.23 N., R.5 W., Mason County, Hydrologic Unit 17110017, Olympic National Park, on left bank 1.2 mi upstream from Lake Cushman, 2.8 mi upstream from Dry Creek, 11.3 mi northwest of Hoodsport, and at mile 29.2.

DRAINAGE AREA.--57.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to current year.

REVISED RECORDS.--WSP 1286: 1932, 1935, 1937(M), 1942(M), 1947(P), 1948(M). WSP 1636: 1940(M). WSP 1736: 1927. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 762.26 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1934, water-stage recorder, and Nov. 1, 1934, to Nov. 10, 1941, nonrecording gages, on right bank at same datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--61 years, 507 ft³/s, 120.37 in/yr, 367,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft³/s Nov. 5, 1934, gage height, 14.4 ft, from high-water mark, from rating curve extended above 9,800 ft³/s on basis of slope-area measurement at gage height 12.2 ft; minimum recorded, 16 ft³/s Sept. 23, 1930, gage height, 1.12 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 2	2130	*3,520	*5.76	No other peak greater than base discharge.			

Minimum discharge, 65 ft³/s Aug. 29, 30, gage height, 1.51 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	250	427	198	184	205	451	425	517	302	149	91
2	67	1960	385	198	173	194	552	501	497	323	136	89
3	67	2190	352	201	163	187	591	633	495	341	128	77
4	111	1410	328	204	157	185	463	499	606	334	124	73
5	97	881	310	208	156	183	415	444	540	314	119	74
6	137	1020	297	207	156	172	419	408	541	284	113	142
7	1380	1020	752	208	152	164	487	376	1050	278	112	100
8	1610	754	1220	210	144	158	580	361	674	298	112	89
9	1610	635	661	204	142	155	678	338	528	302	105	126
10	1790	1030	501	200	147	155	792	332	516	286	102	105
11	1000	1330	437	197	198	155	1580	316	557	267	99	91
12	1430	1840	396	197	205	156	1260	294	628	255	98	580
13	1200	1340	357	202	169	154	841	294	561	243	96	615
14	726	819	919	290	182	159	771	307	621	232	93	579
15	523	616	697	333	209	163	710	326	599	229	92	337
16	442	515	497	295	184	172	641	514	513	226	90	244
17	382	578	425	350	171	199	540	750	528	216	89	209
18	339	1490	369	396	163	212	478	831	603	208	87	174
19	308	1150	341	368	167	218	424	777	644	205	86	151
20	281	897	319	343	164	216	383	683	578	203	82	136
21	263	658	299	312	165	213	352	598	510	198	78	127
22	244	533	311	288	183	210	337	637	468	190	76	119
23	236	846	303	276	203	241	355	792	414	184	74	112
24	231	644	279	269	264	247	331	805	369	172	74	107
25	451	524	268	252	246	217	306	695	353	161	75	102
26	333	468	256	239	224	205	336	614	367	157	73	98
27	282	526	246	230	206	198	848	611	366	154	69	94
28	272	683	234	216	204	188	649	575	339	149	68	89
29	244	586	228	204	---	187	479	536	331	143	67	87
30	251	485	226	195	---	307	427	488	312	144	144	84
31	228	---	205	187	---	380	---	475	---	140	132	---
TOTAL	16602	27678	12845	7677	5081	6155	17476	16235	15625	7138	3042	5101
MEAN	536	923	414	248	181	199	583	524	521	230	98.1	170
MAX	1790	2190	1220	396	264	380	1580	831	1050	341	149	615
MIN	67	250	205	187	142	154	306	294	312	140	67	73
CFSM	9.37	16.1	7.24	4.34	3.16	3.48	10.2	9.16	9.11	4.02	1.72	2.97
IN.	10.80	18.00	8.35	4.99	3.30	4.00	11.37	10.56	10.16	4.64	1.98	3.32
AC-FT	32930	54900	25480	15230	10080	12210	34660	32200	30990	14160	6030	10120

CAL YR 1984 TOTAL 189653 MEAN 518 MAX 2370 MIN 67 CFSM 9.06 IN. 123.34 AC-FT 376200
WTR YR 1985 TOTAL 140655 MEAN 385 MAX 2190 MIN 67 CFSM 6.73 IN. 91.47 AC-FT 279000

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12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1965 to September 1985 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1965 to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
OCT 16...	1400	79	8.00	5.5	13.3	--	K1	<0.10	<0.2	<0.01
NOV 08...	1245	73	6.70	5.5	12.2	--	K1	<0.10	<0.2	<0.01
DEC 12...	1245	84	7.30	3.5	13.0	--	K1	<0.10	0.2	0.01
JAN 17...	1200	85	7.80	4.0	13.4	104	K1	<0.10	<0.2	<0.01
FEB 14...	1330	89	7.90	3.0	13.2	99	<1	<0.10	0.3	<0.01
MAR 14...	1220	94	7.90	4.0	13.0	100	K1	<0.10	<0.2	<0.01
APR 17...	1430	71	7.80	5.0	12.2	98	<1	<0.10	<0.2	<0.01
MAY 09...	1250	83	7.90	5.0	12.9	103	<1	<0.10	0.4	<0.01
JUN 13...	1415	64	7.80	7.5	11.7	100	<1	<0.10	<0.2	<0.01
JUL 10...	1215	75	7.70	11.0	11.4	105	K2	<0.10	<0.2	<0.01
AUG 16...	1115	96	7.40	11.5	10.7	101	K5	<0.10	0.2	<0.01
SEP 12...	1300	77	7.90	9.0	11.3	101	56	<0.10	0.3	<0.01

K - Results based on colony count outside the acceptable range (non-ideal colony count).

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12058600 LOWER LAKE CUSHMAN NEAR HOODSPORT, WA

LOCATION.--Lat 47°23'52", long 123°11'57", in SE¼NW¼ sec.16. T.22 N., R.4 W., Mason County, Hydrologic Unit 17110018, at Cushman Dam No. 2, 2.9 mi west of Hoodsport.

DRAINAGE AREA.--99.2 mi².

PERIOD OF RECORD.--Water years 1974 to September 1985 (discontinued).

REMARKS.--Descriptive location given is for lake outlet. Samples are taken from wooden raft, approximately 20 ft upstream from dam.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
NOV										
08...	1045	62	6.80	9.5	11.2	--	<1	0.20	<0.2	0.01
DEC										
12...	1000	65	7.00	6.0	11.9	--	<1	<0.10	<0.2	<0.01
JAN										
17...	1025	62	7.80	4.5	12.2	95	<1	<0.10	<0.2	<0.01
FEB										
14...	1015	61	7.70	4.0	11.8	91	<1	<0.10	<0.2	0.01
MAR										
14...	1000	63	7.80	6.0	12.5	100	<1	<0.10	0.2	<0.01
APR										
17...	1030	64	7.80	11.5	12.5	116	<1	<0.10	0.1	<0.01
MAY										
09...	1045	65	7.80	11.0	12.4	114	<1	<0.10	0.3	<0.01
JUN										
13...	1115	67	7.80	18.0	9.4	100	<1	<0.10	0.2	<0.01
JUL										
10...	1000	71	7.80	22.0	9.2	106	<1	<0.10	<0.2	<0.01
AUG										
16...	0920	70	7.30	15.5	10.4	106	<1	<0.10	0.2	<0.01
SEP										
12...	1100	68	7.50	12.0	10.3	97	<1	<0.10	<0.2	<0.01

12059500 NORTH FORK SKOKOMISH RIVER NEAR POTLATCH, WA

LOCATION.--Lat 47°19'42", long 123°14'33", in NE¼NW¼ sec.7, T.21 N., R.4 W., Mason County, Hydrologic Unit 17110017, on left bank 1.1 mi upstream from South Fork Skokomish River, 5.4 mi southwest of Potlatch, 7.2 mi downstream from city of Tacoma's Cushman Dam No. 2, and at mile 10.1.

DRAINAGE AREA.--117 mi², includes 99 mi² above Cushman Dam No. 2 which is noncontributing except during spillage.

PERIOD OF RECORD.--March 1944 to November 1949 (destroyed by flood of Nov. 27, 1949), March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 63.49 ft above National Geodetic Vertical Datum of 1929 (levels by city of Tacoma). Prior to Nov. 27, 1949, and Mar. 18 to May 9, 1950, water-stage recorder at site 200 ft downstream at present datum.

REMARKS.--Estimated daily discharges: April 26 to May 2. Records good. Entire flow of river normally diverted at Cushman Dam No. 2 to supply powerplant which discharges directly into sea (Hood Canal). Main portion of McTaggart Creek is diverted through Deer Meadow Creek into Cushman Reservoir No. 2 and may bypass this station. Flow regulated by Lake Cushman (station 12057500) and by pondage in Cushman Reservoir No. 2, from which spill and releases are infrequent.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft³/s Nov. 4, 1955, gage height, 10.45 ft; minimum recorded, 1.3 ft³/s Sept. 5, 14, 16, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 908 ft³/s Nov. 28, gage height, 4.48 ft; minimum, 8.6 ft³/s Aug. 27-30, Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	74	262	69	37	68	173	65	24	18	9.7	10
2	16	320	208	65	38	64	154	62	24	17	9.7	10
3	16	355	166	61	36	64	135	65	24	16	9.7	9.9
4	17	282	142	57	33	74	110	61	24	16	9.5	9.7
5	17	188	121	58	32	76	97	56	25	16	9.1	9.7
6	19	156	104	58	35	74	87	54	33	16	9.1	9.6
7	23	146	129	56	38	68	81	51	70	16	9.1	9.1
8	22	137	180	54	35	63	73	47	40	15	9.1	9.1
9	25	144	156	53	37	60	68	45	33	15	9.1	12
10	44	289	145	52	54	57	63	43	29	14	9.1	11
11	28	331	133	50	195	54	79	41	27	14	9.1	11
12	50	312	128	46	201	53	70	39	26	14	9.1	12
13	47	243	114	44	146	52	63	38	25	13	9.3	19
14	29	176	367	53	128	46	58	39	26	13	9.7	19
15	22	142	349	55	121	46	56	38	27	13	9.7	14
16	18	115	240	55	109	44	52	37	25	13	9.6	12
17	17	106	191	54	97	43	50	35	24	13	9.1	11
18	16	136	158	53	88	41	50	34	23	13	9.1	9.9
19	15	191	137	52	99	41	44	32	22	12	9.1	9.7
20	14	222	120	52	93	43	44	32	22	12	9.1	9.7
21	13	168	105	52	88	52	43	30	22	11	9.1	9.7
22	13	137	99	52	87	68	54	30	20	11	9.1	9.7
23	13	153	91	50	86	173	70	29	20	11	9.1	9.6
24	13	151	84	48	92	184	56	29	18	11	9.1	9.1
25	19	163	80	45	85	162	50	28	18	11	9.1	9.1
26	19	145	77	43	80	154	61	28	18	11	9.1	9.1
27	19	382	76	42	75	169	135	27	18	10	9.0	9.1
28	21	707	69	41	70	169	130	26	18	9.9	8.6	9.1
29	19	452	76	40	---	147	95	26	18	9.7	8.6	8.6
30	22	357	86	38	---	209	73	25	18	9.7	10	8.6
31	22	---	75	38	---	205	---	25	---	9.7	15	---
TOTAL	664	6880	4468	1586	2315	2823	2374	1217	761	404.0	291.9	319.1
MEAN	21.4	229	144	51.2	82.7	91.1	79.1	39.3	25.4	13.0	9.42	10.6
MAX	50	707	367	69	201	209	173	65	70	18	15	19
MIN	13	74	69	38	32	41	43	25	18	9.7	8.6	8.6
AC-FT	1320	13650	8860	3150	4590	5600	4710	2410	1510	801	579	633

CAL YR 1984 TOTAL 32190 MEAN 88.0 MAX 707 MIN 11 AC-FT 63850
WTR YR 1985 TOTAL 24103 MEAN 66.0 MAX 707 MIN 8.6 AC-FT 47810

12061500 SKOKOMISH RIVER NEAR POTLATCH, WA

LOCATION.--Lat 47°18'36", long 123°10'33", in SE¼NW¼ sec.15, T.21 N., R.4 W., Mason County, Hydrologic Unit 17110017, on upstream side of right pier of bridge on U.S. Highway 101, 3.7 mi downstream from confluence of North and South Forks, 4.7 mi southwest of Potlatch, and at mile 5.3.

DRAINAGE AREA.--227 mi^2, includes 99 mi^2 above Cushman Dam No. 2 which is normally noncontributing.

PERIOD OF RECORD.--July 1943 to current year.

REVISED RECORDS.--WSP 1716: 1950(M), 1956. WSP 1932: Drainage area. WDR WA-72: 1968(M), 1971(M). WDR WA-75: 1974.

GAGE.--Water-stage recorder. Datum of gage is 10.67 ft above National Geodetic Vertical Datum of 1929. Prior to May 27, 1964, water-stage recorders or nonrecording gage at several sites about 0.6 mi upstream at different datums. Supplementary water-stage recorder on right bank at site 0.6 mi upstream at datum 16.47 ft above National Geodetic Vertical Datum of 1929 used Nov. 16 to Dec. 10, 1964, June 11 to July 7, and Nov. 2-24, 1965.

REMARKS.--No estimated daily discharges. Records good. Flow partly regulated by Lake Cushman and Cushman Reservoir No. 2. In normal years, practically entire flow of North Fork is diverted at Cushman Dam No. 2 and is discharged into Puget Sound through Cushman powerplant No. 2.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft^3/s Nov. 3, 1955, gage height, 12.6 ft, site and datum then in use; minimum, 125 ft^3/s Sept. 14-17, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1933 reached an elevation of 30.8 ft above National Geodetic Vertical Datum of 1929 at site on left bank 150 ft upstream from old highway bridge, discharge, 18,600 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,830 ft^3/s Nov. 3, gage height, 15.03 ft; minimum, 155 ft^3/s Aug. 25-29, gage height, 9.06 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	757	1830	679	435	708	1970	999	455	303	200	210
2	170	4420	1520	642	422	674	2000	940	445	295	200	192
3	170	6700	1300	613	408	640	1880	1040	433	290	197	181
4	176	4070	1140	603	396	661	1480	997	470	286	192	173
5	192	2530	1020	610	386	692	1230	922	461	281	189	169
6	196	2060	933	620	390	674	1110	844	462	280	187	172
7	474	2450	1290	620	421	629	1080	775	919	277	185	188
8	952	1960	3840	617	390	598	1120	732	783	268	190	184
9	1090	1860	2250	602	390	584	1140	702	620	262	187	193
10	2010	2960	1680	586	466	576	1190	660	549	260	185	208
11	1330	4060	1380	569	992	567	1720	635	513	255	183	200
12	1690	3660	1230	551	1250	560	2170	601	495	249	179	239
13	2350	2900	1070	537	891	552	1500	580	482	246	178	623
14	1440	2030	3670	603	788	545	1260	570	491	243	175	627
15	1010	1590	3650	866	1010	537	1120	558	525	237	174	547
16	796	1340	2110	780	902	531	1020	574	471	234	169	418
17	667	1210	1610	745	788	545	918	671	443	233	168	373
18	583	2200	1310	792	713	560	850	705	432	231	164	327
19	524	2890	1140	788	729	564	769	676	428	226	166	294
20	471	2970	1050	770	748	587	707	632	419	221	165	271
21	427	1940	943	720	712	657	661	584	402	218	165	256
22	395	1510	956	670	771	718	661	571	385	218	163	241
23	372	1630	995	630	833	1160	873	594	369	214	160	231
24	353	1610	952	596	1100	1440	867	607	352	210	159	222
25	478	1470	899	568	1080	1160	795	580	343	209	158	214
26	530	1290	843	540	903	1010	832	552	331	204	156	209
27	499	2100	812	516	796	993	2300	527	328	200	155	204
28	515	4600	749	495	732	944	2200	506	324	199	155	199
29	483	3190	764	477	---	887	1450	505	316	194	155	194
30	541	2390	807	456	---	1560	1150	480	310	194	167	190
31	560	---	732	440	---	2140	---	457	---	196	228	---
TOTAL	21614	76347	44475	19301	19842	24653	38023	20776	13756	7433	5454	7949
MEAN	697	2545	1435	623	709	795	1267	670	459	240	176	265
MAX	2350	6700	3840	866	1250	2140	2300	1040	919	303	228	627
MIN	170	757	732	440	386	531	661	457	310	194	155	169
AC-FT	42870	151400	88220	38280	39360	48900	75420	41210	27290	14740	10820	15770

CAL YR 1984 TOTAL 406931 MEAN 1112 MAX 6700 MIN 170 AC-FT 807100
WTR YR 1985 TOTAL 299623 MEAN 821 MAX 6700 MIN 155 AC-FT 594300

12069550 BIG BEEF CREEK NEAR SEABECK, WA

LOCATION.--Lat 47°38'27", long 122°47'02", in NW¼SE¼ sec. 22, T.25 N., R.1 W., Kitsap County, Hydrologic Unit 17110018, on left bank 1.1 mi upstream from county road bridge across Big Beef Harbor, and 1.9 mi east of Seabeck.

DRAINAGE AREA.--13.8 mi².

PERIOD OF RECORD.--August 1969 to October 1981, water years 1983-85, June to October months only.

REVISED RECORDS.--WDR WA-76-1: 1975(M).

GAGE.--Water-stage recorder. Elevation of gage is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 7, 1978, at site 110 ft downstream at datum 2.03 ft lower.

REMARKS.--Estimated daily discharges: June 24 to July 12. Records good except for estimated daily discharges, June 24 to July 12, which are fair. Flow regulated by Lake Symington, 4.6 mi upstream. No diversions upstream from station.

AVERAGE DISCHARGE.--12 years (water years 1970-81), 37.9 ft³/s, 37.30 in/yr, 27,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 757 ft³/s Dec. 7, 1970, gage height, 4.92 ft; maximum gage height, 5.74 ft Jan. 16, 1974, site and datum then in use; minimum, 2.3 ft³/s Aug. 30, 31, 1970, Sept. 2, 1974, but may have been less during period of no gage-height record Sept. 3-30, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded during period June to October, 139 ft³/s Oct. 27, gage height, 3.16 ft; minimum discharge recorded, 3.1 ft³/s Aug. 17, 18, 23-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1986
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	8.7	6.1	4.6	3.5	3.7
2	9.0	6.0	4.4	3.4	3.7
3	9.0	5.8	4.0	3.4	3.7
4	9.1	5.6	4.0	3.5	3.7
5	8.8	5.5	4.0	3.7	3.8
6	10	5.5	4.0	3.6	4.2
7	22	5.5	3.9	3.5	3.9
8	22	5.4	3.9	3.5	3.8
9	17	5.3	3.9	4.4	3.9
10	13	5.2	4.2	4.1	4.0
11	11	5.1	3.7	3.6	4.4
12	9.8	5.0	3.7	4.7	4.0
13	9.6	4.7	3.6	6.9	4.0
14	9.4	4.7	3.7	5.3	4.0
15	9.1	4.8	3.6	4.3	4.0
16	8.8	4.9	3.4	4.0	4.4
17	8.5	4.9	3.4	3.9	4.2
18	8.1	4.6	3.4	3.7	4.2
19	7.9	4.3	3.5	3.6	5.4
20	7.8	4.2	3.5	3.7	10
21	7.5	4.0	3.4	3.7	13
22	7.4	4.0	3.4	3.6	46
23	7.3	4.1	3.3	3.6	31
24	6.9	4.0	3.3	3.6	27
25	6.9	3.9	3.3	3.6	43
26	6.9	3.5	3.2	3.6	50
27	6.9	3.5	3.2	3.6	116
28	6.9	3.5	3.3	3.5	112
29	6.6	3.6	3.3	3.6	69
30	6.3	3.6	3.9	3.7	49
31	---	3.9	3.8	---	37
TOTAL	288.2	144.7	113.8	116.4	680.0
MEAN	9.61	4.67	3.67	3.88	21.9
MAX	22	6.1	4.6	6.9	116
MIN	6.3	3.5	3.2	3.4	3.7
CFSM	.70	.34	.27	.28	1.59
IN.	.78	.39	.31	.31	1.83
AC-FT	572	287	226	231	1350

12073500 HUGE CREEK NEAR WAUNA, WA

LOCATION.--Lat 47°23'22", long 122°41'52", at north line sec.20, T.22 N., R.1 E., Pierce County, Hydrologic Unit 17110019, on right bank 25 ft upstream from bridge, 0.1 mi upstream from mouth, and 2.5 mi west of Wauna.

DRAINAGE AREA.--6.47 mi².

PERIOD OF RECORD.--July 1947 to September 1969, October 1977 to current year.

REVISED RECORDS.--WSP 1636: 1953-54, 1956, 1957(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 100 ft, from topographic map. Prior to Sept. 27, 1978, at site 50 ft downstream and prior to June 26, 1951, at datum 0.86 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--30 years (water years 1948-69, 1978-85), 11.4 ft³/s, 23.93 in/yr, 8,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 391 ft³/s, Feb. 9, 1951, gage height, 4.50 ft present datum; minimum, 2.6 ft³/s Aug. 26, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 70 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 28	1000	*50	*2.25				

Minimum discharge, 4.0 ft³/s Aug. 23-27, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	12	22	14	8.3	8.3	11	7.1	5.5	4.8	5.0	4.3
2	5.0	20	18	13	8.3	7.7	10	6.9	5.7	4.8	4.9	4.3
3	5.0	15	15	12	7.9	7.7	9.9	7.0	5.5	4.7	4.8	4.3
4	5.0	11	13	11	7.6	9.9	8.8	6.7	5.9	4.7	4.8	4.4
5	5.0	8.2	12	11	7.6	8.2	8.2	6.7	5.5	4.7	4.7	4.4
6	5.1	8.2	11	11	7.9	8.0	7.9	6.5	6.7	4.8	4.7	4.7
7	5.2	10	13	11	9.2	7.7	7.8	6.5	12	4.8	4.7	4.9
8	5.2	9.0	20	11	8.4	7.5	7.6	6.4	6.7	4.7	4.8	4.5
9	5.3	9.2	18	10	8.5	7.3	7.5	6.3	5.9	4.6	4.7	5.5
10	12	16	17	10	14	7.3	7.3	6.3	5.5	4.6	4.7	5.0
11	8.8	17	16	9.9	23	7.2	7.8	6.3	5.3	4.6	4.7	4.6
12	7.6	15	19	9.7	24	7.1	7.6	6.3	5.3	4.6	4.5	4.7
13	7.7	14	16	9.6	17	7.1	7.3	6.3	5.2	4.6	4.4	5.1
14	6.7	12	31	11	15	7.1	7.1	6.5	6.1	4.4	4.3	5.4
15	6.3	9.7	37	11	13	7.1	7.1	6.3	5.8	4.4	4.4	4.9
16	6.1	8.7	26	9.6	11	7.1	7.1	6.1	5.4	4.5	4.3	4.9
17	6.1	8.5	22	9.3	10	7.1	6.9	5.9	5.1	4.5	4.3	4.9
18	6.1	10	18	9.6	9.6	7.1	6.9	5.9	5.0	4.4	4.3	4.7
19	5.9	11	15	9.7	9.8	7.1	6.9	5.9	5.0	4.3	4.4	4.6
20	5.8	10	15	9.8	9.5	7.1	6.9	5.9	5.0	4.3	4.5	4.5
21	5.7	9.0	14	9.2	8.9	7.9	6.9	5.9	5.0	4.3	4.5	4.6
22	5.7	8.2	13	9.0	8.5	9.4	7.5	5.8	5.0	4.3	4.4	4.5
23	5.7	11	13	8.9	8.3	16	8.8	5.9	5.0	4.6	4.3	4.4
24	5.7	11	12	8.7	8.1	13	7.2	5.7	4.9	4.8	4.3	4.4
25	5.9	10	12	8.5	7.8	11	7.0	5.7	4.9	4.7	4.2	4.4
26	5.9	9.2	12	8.2	7.7	12	7.7	5.8	4.9	4.6	4.2	4.4
27	5.9	27	13	8.2	7.6	16	11	5.7	4.9	4.6	4.3	4.4
28	5.9	44	12	8.1	7.6	13	8.4	5.6	4.9	4.6	4.3	4.4
29	5.9	36	15	8.0	---	11	7.4	5.7	4.9	4.6	4.2	4.4
30	5.9	33	23	7.9	---	14	7.1	6.0	4.8	4.7	4.3	4.5
31	5.9	---	18	7.9	---	13	---	5.6	---	4.9	4.4	---
TOTAL	189.0	432.9	531	305.8	294.1	287.0	236.6	191.2	167.3	142.5	139.3	139.0
MEAN	6.10	14.4	17.1	9.86	10.5	9.26	7.89	6.17	5.58	4.60	4.49	4.63
MAX	12	44	37	14	24	16	11	7.1	12	4.9	5.0	5.5
MIN	5.0	8.2	11	7.9	7.6	7.1	6.9	5.6	4.8	4.3	4.2	4.3
CFSM	.94	2.23	2.64	1.52	1.62	1.43	1.22	.95	.86	.71	.69	.72
IN.	1.09	2.49	3.05	1.76	1.69	1.65	1.36	1.10	.96	.82	.80	.80
AC-FT	375	859	1050	607	583	569	469	379	332	283	276	276

CAL YR 1984 TOTAL 4103.3 MEAN 11.2 MAX 44 MIN 4.9 CFSM 1.73 IN. 23.59 AC-FT 8140
WTR YR 1985 TOTAL 3055.7 MEAN 8.37 MAX 44 MIN 4.2 CFSM 1.29 IN. 17.57 AC-FT 6060

12079000 DESCHUTES RIVER NEAR RAINIER, WA

LOCATION.--Lat 46°51'08", long 122°40'03", in SE¼SW¼ sec.22, T.16 N., R.1 E., Thurston County, Hydrologic Unit 17110016, on right bank 75 ft upstream from county road crossing, 0.4 mi downstream from outlet of Reichel Lake, 2.7 mi southeast of Rainier, and at mile 25.9.

DRAINAGE AREA.--89.8 mi².

PERIOD OF RECORD.--June 1949 to September 1975, water years 1976-79 (annual maximum), June 1980 to July 1982, water years 1983-1985 (June to October seasonal records).

REVISED RECORDS.--WSP 1246: Drainage area. WDR WA-83-1: 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 348.77 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: June 8-24. Records excellent. Probably some small diversions for irrigation and domestic use upstream from station. No regulation. Water temperatures August 1968 to September 1970.

AVERAGE DISCHARGE.--27 years (water years 1950-75, 1981), 269 ft³/s, 40.68 in/yr, 194,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,780 ft³/s Jan. 15, 1974, gage height, 15.68 ft, from high-water mark in well, from rating curve extended above 3,900 ft³/s; minimum, 16 ft³/s Sept. 7, 1963, gage height, 2.60 ft.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge during period June to October 1985, 1,360 ft³/s Oct. 25, gage height, 6.76 ft; minimum discharge, 27 ft³/s Aug. 28-30, gage height, 3.04 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1985
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	71	51	41	30	33
2	71	50	41	29	33
3	70	48	37	28	34
4	69	47	35	28	33
5	72	46	35	28	33
6	73	46	34	43	34
7	493	46	35	55	36
8	300	44	56	45	35
9	200	42	46	38	34
10	160	41	40	49	34
11	135	41	38	57	36
12	120	41	35	44	43
13	108	40	34	50	40
14	110	40	33	59	37
15	100	39	32	59	36
16	90	39	32	53	37
17	83	39	31	55	39
18	78	38	30	54	37
19	75	37	30	48	37
20	71	36	31	45	110
21	68	36	31	42	153
22	66	36	31	41	193
23	64	36	30	39	230
24	61	37	29	38	358
25	59	37	29	37	1050
26	58	36	28	37	755
27	56	34	28	36	906
28	55	33	27	35	948
29	54	33	27	34	552
30	53	33	27	34	347
31	--	35	30	---	272
TOTAL	3143	1237	1043	1270	6555
MEAN	105	39.9	33.6	42.3	211
MAX	493	51	56	59	1050
MIN	53	33	27	28	33
CFSM	1.17	.44	.37	.47	2.35
IN.	1.30	.51	.43	.53	2.72
AC-FT	6230	2450	2070	2520	13000

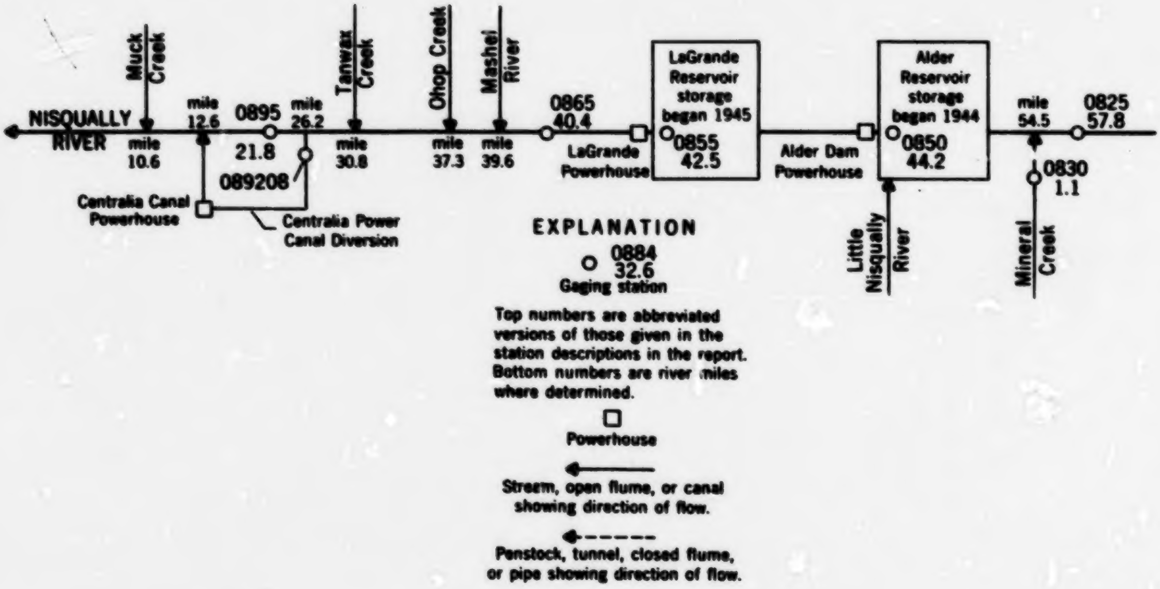
Muck Creek
Tanwax Creek
Ohop Creek
Mashel River
NISQUALLY RIVER
mile 10.6
mile 12.6
0895
21.8
mile 26.2
089208
mile 30.8
mile 37.3
mile 39.6
0865
40.4
Centralia Canal Powerhouse
Centralia Power Canal Diversion
LaGrande Powerhouse
LaGrande Reservoir storage began 1945
0855
42.5
Alder Dam Powerhouse
Alder Reservoir storage began 1944
0850
44.2
Little Nisqually River
mile 54.5
0825
57.8
0830
1.1
Mineral Creek
EXPLANATION
0884
32.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 9.--Gaging stations in Nisqually River basin.

12082500 NISQUALLY RIVER NEAR NATIONAL, WA

LOCATION.--Lat 46°45'10", long 122°04'57", in SW¼SW¼ sec.29, T.15 N., R.6 E., Pierce County, Hydrologic Unit 17110015, on right bank 100 ft downstream from old railroad bridge, 1.2 mi west of National, 3.3 mi upstream from Mineral Creek, and at mile 57.8.

DRAINAGE AREA.--133 mi².

PERIOD OF RECORD.--May 1942 to current year.

REVISED RECORDS.--WSP 1716: 1943(M), 1947(P), 1950-51, 1956(M). WDR WA-74-1: 1968(M), 1969(M), 1972(P).

GAGE.--Water-stage recorder. Elevation of gage is 1,450 ft, from river-profile map.

REMARKS.--Estimated daily discharges: Dec. 19-21. Records good. Small diversions for domestic use. Slight regulation at low flow by powerplant of Mount Rainier National Park on Paradise River. Water temperatures published October 1951 to September 1982. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--43 years, 778 ft³/s, 79.44 in/yr, 563,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft³/s Dec. 2, 1977, gage height, 11.96 ft, from rating curve extended above 8,000 ft³/s on basis of slope-area measurement at gage height 11.25 ft; minimum, 108 ft³/s Dec. 1, 3, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1345	*5,380	*8.22	No other peak greater than base discharge.			

Minimum discharge, 165 ft³/s Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238	366	573	329	295	506	608	904	925	691	580	257
2	267	1080	506	322	285	453	726	1070	897	770	532	233
3	325	1500	456	319	261	416	895	1190	911	867	594	262
4	341	1530	429	318	242	410	819	1010	1130	911	606	333
5	283	1140	398	319	241	387	748	846	1110	859	571	505
6	255	921	379	326	238	366	736	746	1140	737	559	575
7	291	858	382	335	238	346	852	689	4230	753	560	333
8	370	759	453	338	241	329	1010	647	3110	808	515	251
9	420	707	455	327	234	321	1200	592	1900	917	424	220
10	461	773	440	319	233	316	1410	608	1470	953	425	260
11	392	859	409	317	317	312	1470	568	1290	826	438	213
12	382	993	404	313	363	313	1470	508	1350	735	475	207
13	516	1170	390	306	300	306	1350	514	1390	672	529	220
14	447	1120	486	323	299	307	1360	555	1370	647	576	204
15	371	910	518	380	367	312	1350	550	1340	668	578	192
16	336	757	449	371	333	324	1290	859	1110	655	579	257
17	305	660	419	398	309	363	1080	1430	1110	641	558	456
18	288	685	377	429	297	386	936	1670	1230	694	557	304
19	268	690	355	431	298	398	801	1540	1320	731	514	255
20	258	640	335	450	321	408	688	1270	1260	705	439	223
21	245	577	350	431	336	409	597	1180	1070	623	370	225
22	239	525	399	409	509	389	558	1310	989	635	378	221
23	240	626	473	396	517	478	598	1490	864	700	462	224
24	261	604	454	388	615	457	540	1610	687	622	498	228
25	834	536	420	379	599	404	492	1500	626	628	493	258
26	732	492	405	368	537	379	496	1280	701	620	532	291
27	563	576	394	353	488	371	881	1150	754	627	481	301
28	504	695	372	338	460	344	1140	1040	740	657	393	256
29	413	697	368	323	---	328	983	1040	753	700	419	244
30	372	662	384	305	---	406	891	1100	702	726	363	248
31	331	---	345	298	---	538	---	975	---	698	274	---
TOTAL	11548	24108	12977	10958	9773	11782	27975	31441	37479	22476	15272	8256
MEAN	373	804	419	353	349	380	933	1014	1249	725	493	275
MAX	834	1530	573	450	615	538	1470	1670	4230	953	606	575
MIN	238	366	335	298	233	306	492	508	626	620	274	192
CFSM	2.80	6.05	3.15	2.65	2.62	2.86	7.02	7.62	9.39	5.45	3.71	2.07
IN.	3.23	6.74	3.63	3.06	2.73	3.30	7.82	8.79	10.48	6.29	4.27	2.31
AC-FT	22910	47820	25740	21740	19380	23370	55490	62360	74340	44580	30290	16380

CAL YR 1984 TOTAL 283999 MEAN 776 MAX 5800 MIN 192 CFSM 5.83 IN. 79.43 AC-FT 563300
WTR YR 1985 TOTAL 224045 MEAN 614 MAX 4230 MIN 192 CFSM 4.62 IN. 62.67 AC-FT 444400

12083000 MINERAL CREEK NEAR MINERAL, WA

LOCATION.--Lat 46°44'15", long 122°08'33", in NE¼SW¼ sec.35, T.15 N., R.5 E., Lewis County, Hydrologic Unit 17110015, on right bank 0.5 mi downstream from railroad bridge, 2.3 mi northeast of Mineral, and at mile 1.1.

DRAINAGE AREA.--75.2 mi².

PERIOD OF RECORD.--June 1942 to current year.

REVISED RECORDS.--WSP 1932: Drainage area. WRD WA-74: 1971(P).

GAGE.--Water-stage recorder. Elevation of gage is 1,340 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-12, 17-25, Jan. 27, 28, June 28 to Sept. 30. Records fair except for estimated daily discharges, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--43 years, 375 ft³/s, 67.72 in/yr, 271,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,740 ft³/s Jan. 20, 1972, gage height, 10.87 ft; minimum, 16 ft³/s Aug. 30, 31, 1970; minimum gage height, 1.40 ft Sept. 22, 23, 1950.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 4	0545	*2,410	*7.37				

Minimum daily discharge, 32 ft³/s Aug. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	226	494	281	151	306	556	468	212	91	74	37
2	41	1580	420	257	142	283	578	510	202	88	58	38
3	40	2060	368	248	128	261	592	544	184	85	51	35
4	45	2080	329	255	123	269	510	487	245	81	47	37
5	45	1120	298	258	129	253	456	430	227	78	44	60
6	42	721	273	259	121	237	452	391	266	75	43	160
7	43	712	289	265	127	223	496	366	1440	72	60	125
8	53	598	395	260	119	209	535	343	850	70	80	92
9	90	524	384	244	117	200	593	322	543	68	57	82
10	203	672	352	228	121	197	673	329	426	66	51	130
11	170	761	333	217	282	193	709	319	360	65	48	99
12	138	800	342	205	366	194	732	292	319	63	45	90
13	283	876	316	199	265	185	645	283	290	61	43	117
14	237	808	453	221	256	185	621	293	271	59	41	138
15	162	605	509	290	358	193	592	286	250	58	40	148
16	119	488	413	267	308	218	561	345	224	56	39	135
17	100	420	368	279	269	245	487	429	203	55	38	253
18	89	488	325	287	246	247	438	441	184	54	38	200
19	78	563	299	275	243	247	392	409	168	53	37	165
20	71	551	279	281	244	269	350	362	153	51	37	145
21	66	489	265	272	241	278	314	332	139	50	36	123
22	63	430	300	259	323	274	314	330	128	49	35	102
23	61	507	334	247	353	402	429	336	120	48	35	91
24	70	495	318	236	409	401	378	338	115	48	34	84
25	115	430	296	223	396	333	347	324	109	47	34	77
26	169	384	280	210	348	299	329	286	105	46	33	72
27	191	489	280	200	313	285	489	264	102	45	33	67
28	243	748	259	190	295	259	651	245	100	44	32	63
29	181	741	277	181	---	240	543	253	97	45	32	60
30	149	638	374	160	---	385	480	243	94	47	36	58
31	133	---	322	153	---	536	---	219	---	57	41	---
TOTAL	3532	22004	10544	7407	6793	8306	15242	10819	8126	1875	1352	3083
MEAN	114	733	340	239	243	268	508	349	271	60.5	43.6	103
MAX	283	2080	509	290	409	536	732	544	1440	91	80	253
MIN	40	226	259	153	117	185	314	219	94	44	32	35
CFSM	1.52	9.75	4.52	3.18	3.23	3.56	6.76	4.64	3.60	.80	.58	1.37
IN.	1.75	10.88	5.22	3.66	3.36	4.11	7.54	5.35	4.02	.93	.67	1.53
AC-FT	7010	43640	20910	14690	13470	16470	30230	21460	16120	3720	2680	6120

CAL YR 1984 TOTAL 132972 MEAN 363 MAX 2860 MIN 40 CFSM 4.83 IN. 65.78 AC-FT 263700
WTR YR 1985 TOTAL 99083 MEAN 271 MAX 2080 MIN 32 CFSM 3.60 IN. 49.01 AC-FT 196500

12083400 NISQUALLY RIVER AT ELBE, WA

LOCATION.--Lat 46°45'47", long 122°11'27", in NW¼NW¼ sec.28, T.15 N., R.5 E., Pierce County, Hydrologic Unit 17110015, at State Highway 7 crossing at Elbe, and at mile 51.7.

DRAINAGE AREA.--226 mi^2.

PERIOD OF RECORD.--Water years 1973 to September 1985 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT										
17...	1315	70	7.70	6.0	12.4	--	<1	<0.10	<0.2	0.02
NOV										
07...	1140	53	6.50	6.0	11.9	--	K8	0.20	0.5	0.01
DEC										
13...	0930	62	7.70	3.5	12.9	--	K3	0.10	0.3	0.01
JAN										
15...	1530	64	7.70	4.5	13.1	105	<1	<0.10	<0.2	<0.01
FEB										
12...	1400	69	7.70	3.5	13.6	105	K1	0.20	<0.2	<0.01
MAR										
13...	1350	73	8.00	6.0	12.0	100	<1	<0.10	0.2	<0.01
APR										
15...	1345	46	7.90	8.0	11.4	101	K1	<0.10	<0.2	0.02
MAY										
07...	1045	51	7.90	6.5	11.7	99	K1	<0.10	0.6	<0.01
JUN										
11...	1520	44	7.70	13.0	10.2	100	K1	<0.10	0.2	0.03
JUL										
11...	1000	39	7.50	10.0	11.5	106	K10	<0.10	<0.2	0.60
AUG										
14...	1030	45	7.60	11.0	10.9	104	K12	<0.10	0.4	0.06
SEP										
10...	1250	68	7.80	12.0	10.1	98	22	<0.10	<0.2	0.02

K - Results based on colony count outside the acceptable range (non-ideal colony count).

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12085000 ALDER RESERVOIR AT ALDER, WA

LOCATION.--Lat 46°48'09", long 122°18'37", in SE¼NW¼ sec.9, T.15 N., R.4 E., Thurston County, Hydrologic Unit 17110015, near left end of Alder Dam on Nisqually River, 1.0 mi west of Alder, 1.7 mi upstream from La Grande Dam, 4.6 mi upstream from Mashel River, and at mile 44.2.

DRAINAGE AREA.--286 mi².

PERIOD OF RECORD.--November 1944 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.61 ft above National Geodetic Vertical Datum of 1929 (levels by city of Tacoma). Prior to July 8, 1946, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-arch dam; storage began Nov. 7, 1944; dam completed in 1945. Usable capacity, 179,600 acre-ft between gage heights 1,114 ft, lower limit of operating range, and 1,207 ft, top of spillway gates. Unused storage below gage height 1,114 ft, 52,110 acre-ft. Crest of spillway is at gage height 1,177 ft. Figures given herein represent total contents. Water is used by city of Tacoma for power production.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 233,848 acre-ft Dec. 4, 1975, gage height, 1,207.68 ft; minimum since reservoir first filled, 86,710 acre-ft Mar. 26, 1969, gage height, 1,142.77 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 229,973 acre-ft June 7, gage height, 1,206.43 ft; minimum, 105,956 acre-ft Feb. 11, gage height, 1,154.63 ft.

Capacity table (gage height, in feet, and total contents, in acre-feet)
(Based on project surveys and maps by city of Tacoma in 1944)

1,144	88,510	1,170	135,800	1,200	210,840
1,150	97,910	1,180	158,260	1,207.7	233,910
1,160	115,960	1,190	183,270		

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184570	157418	193757	138434	115865	114588	114493	179542	218590	222730	198969	177012
2	183882	163892	192066	136258	114740	115101	117503	182148	218950	222310	197867	176018
3	182811	171138	189914	134032	113399	115462	120386	185157	219280	222100	196997	174996
4	182250	178390	187523	132628	111857	115519	122680	187342	220180	221950	196223	174176
5	182199	181740	185004	132093	110747	115709	124380	189000	220930	221680	195312	173613
6	182199	183908	182301	131578	109614	115652	125740	190253	222370	221170	194427	173588
7	182199	185820	179670	131068	108641	115291	127862	190906	229973	220660	193945	172667
8	179005	187162	177854	130722	107696	114721	130252	191564	228888	220270	193228	171494
9	178442	188116	175865	130252	106774	114208	133205	192013	228550	220000	192172	170322
10	178186	190227	173972	129620	106026	113399	136902	192198	228733	219850	191116	169484
11	177726	193043	172489	128913	106931	112507	140904	192620	228764	219400	190018	168417
12	177191	196089	170831	128206	108009	111657	144876	192884	228888	218710	189235	167335
13	177216	199897	169027	127400	108096	110947	148433	192911	228733	217870	189000	166435
14	177242	202884	168341	126760	108062	110165	151881	192964	228370	217000	188765	165560
15	177216	204450	168163	126440	108729	109225	154895	193254	227740	216292	188271	164696
16	176757	205088	167135	126120	108959	108446	157815	194374	226600	215451	187936	164455
17	176757	204421	165685	126080	108871	108062	160046	196852	225940	214523	187239	164553
18	175047	204392	163867	126080	108570	107505	161690	199665	226420	213769	186542	164235
19	174253	202739	161858	125780	108270	107070	162626	202362	227020	212957	186130	163794
20	174253	202159	159787	125760	107975	106844	163230	204421	227500	212203	185208	163108
21	174253	200709	157722	125560	107505	106809	163475	205496	227650	211362	184621	162146
22	171138	198824	155850	125300	107975	106722	163818	207300	227590	210318	183678	161210
23	170170	198012	154382	124880	108605	108183	164872	208984	227140	209448	183091	160163
24	168900	196939	152758	124400	109809	108313	165610	211275	226360	208433	182581	159176
25	167460	195258	150958	123020	111402	109844	166235	213102	225460	207416	182122	158120
26	167335	193439	149072	123140	112767	110183	166860	214523	224890	206281	181714	157254
27	167210	193571	147156	122560	113548	110565	169382	215538	224470	204943	181128	156365
28	167210	194454	145058	121600	114018	110601	172897	216118	224110	203638	180336	155384
29	167210	195070	143350	120446	---	110456	175508	216880	223750	202391	179568	154312
30	162170	194963	142146	119078	---	110838	177548	217600	223270	201260	178851	153313
31	159858	---	140446	116938	---	112525	---	218020	---	200013	177956	---
MEAN	174900	192100	165900	127200	109800	111200	149500	199600	225600	214100	187900	165500
MAX	184570	205088	193757	138434	115865	115709	177548	218020	229973	222730	198969	177012
MIN	159858	157418	140446	116938	106026	106722	114493	179542	218590	200013	177956	153313
†	1180.68	1194.49	1172.20	1160.64	1159.12	1158.32	1187.76	1202.46	1204.21	1196.27	1187.92	1177.88
‡	-27742	+35105	-54517	-23508	-2920	-1493	+65023	+40472	+5250	-23257	-22057	-24643

CAL YR 1984......................‡ -18496
WTR YR 1985......................‡ -34287

† Gage height, in feet, at end of month.
‡ Change in contents, in acre-feet.

12085500 LA GRANDE RESERVOIR AT LA GRANDE, WA

LOCATION.--Lat 46°49'23", long 122°18'13", in SW¼SE¼ sec.33, T.16 N., R.4 E., Thurston County, Hydrologic Unit 17110015, at left end of gate control structure, 1.1 mi southeast of La Grande, 1.7 mi downstream from Alder Dam, and at mile 42.5.

DRAINAGE AREA.--289 mi².

PERIOD OF RECORD.--January 1945 to current year. January 1945 to September 1951 included in combined adjustment to monthly flow of Nisqually River at La Grande. Monthend contents January 1945 to September 1950, published in WSP 1316.

GAGE.--Water-stage recorder. Datum of gage is 7.61 ft below National Geodetic Vertical Datum of 1929 (levels by city of Tacoma). Prior to June 12, 1947, monthend gage heights furnished by city of Tacoma from temporary gages in pool upstream from dam.

REMARKS.--Reservoir is formed by concrete gravity dam completed in 1944; storage began in February 1945. Usable storage, 1,053 acre-ft between gage heights 910 ft, minimum practical head, and 935 ft, normal reservoir level. Dead storage below gage height 910 ft, 1,629 acre-ft. Figures given herein represent total contents. Water used by city of Tacoma for power production.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,760 acre-ft May 14, 1950, gage height, 936.4 ft; minimum observed since reservoir first filled, 1,370 acre-ft Aug. 24, 1956, gage height, 900.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,683 acre-ft Aug. 12, gage height, 935.02 ft; minimum, 2,067 acre-ft Aug. 21, gage height, 922.43 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	930.02	2,418	—
Oct. 31	930.04	2,419	+1
Nov. 30	929.70	2,402	-17
Dec. 31	929.72	2,403	+1
CAL YR 1984	—	—	-1
Jan. 31	930.29	2,432	+29
Feb. 28	930.24	2,429	-3
Mar. 31	928.96	2,365	-64
Apr. 30	930.13	2,424	+59
May 31	933.36	2,592	+168
June 30	929.99	2,416	-176
July 31	930.67	2,451	+35
Aug. 31	930.03	2,419	-32
Sept. 30	929.89	2,412	-7
WTR YR 1985	—	—	-6

12086500 NISQUALLY RIVER AT LA GRANDE, WA

LOCATION.--Lat 46°50'25", long 122°19'38", in NW¼SE¼ sec.29, T.16 N., R.4 E., Pierce County, Hydrologic Unit 17110015, on right bank 0.4 mi downstream from city of Tacoma powerplant, 0.6 mi northwest of La Grande, 0.8 mi upstream from Mashel River, and at mile 40.4.

DRAINAGE AREA.--292 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1906 to October 1911, November to December 1911 (gage heights only), October 1919 to September 1931, October 1943 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as "below Little Nisqually River, near La Grande" September 1906 to October 1911, and as "near La Grande" November to December 1911 and October 1919 to September 1931.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1927-28(M), 1949-50. WRD WA-74: 1956(M), 1959-61(M), 1965.

GAGE.--Water-stage recorder. Elevation of gage is 490 ft, from river-profile map. See WSP 1932 for history of changes prior to Feb. 8, 1945.

REMARKS.--No estimated daily discharges. Water-discharge records good except those above 5,000 ft^3/s, which are fair. Flow regulated by city of Tacoma powerplant at La Grande since December 1943, by Alder Reservoir (see sta. 12085000) since November 1944, and by La Grande Reservoir (see sta 12085500) since February 1945. All diversions returned to river upstream from gage. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--59 years (water years 1907-11, 1920-31, 1944-85), 1,438 ft^3/s, 66.88 in/yr, 1,042,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,100 ft^3/s Dec. 4, 1975, gage height, 11.90 ft; practically no flow on many occasions at site "near La Grande" (which excluded diversion) as a result of regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,200 ft^3/s June 7, gage height, 7.41 ft; minimum, 573 ft^3/s Jan. 21, gage height, 3.28 ft; minimum daily, 631 ft^3/s Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	774	1830	2310	1860	960	876	957	847	1100	1130	1140	789
2	776	1850	2300	1860	963	835	922	860	1100	1130	1060	790
3	775	1840	2290	1850	971	835	903	879	1100	1130	1010	793
4	775	1850	2300	1480	999	889	905	881	1110	1130	1010	794
5	776	1570	2270	1100	931	839	905	877	1110	1130	1010	820
6	774	1380	2270	1090	934	874	903	918	1110	1130	982	874
7	776	1390	2270	1090	903	923	905	971	2160	1130	935	929
8	798	1390	2280	1040	859	957	903	1010	5410	1130	949	926
9	816	1390	2280	997	832	976	906	1020	3350	1130	940	925
10	866	1400	2080	996	843	977	904	1020	2230	1130	907	892
11	869	1400	1850	996	857	1100	904	1040	2000	1130	905	867
12	869	1420	1850	994	865	966	903	1050	1910	1150	817	869
13	869	1450	1850	985	865	948	909	1040	2040	1160	722	866
14	869	1440	1850	998	866	975	907	1030	2100	1160	761	863
15	869	1430	1860	1010	905	1000	922	994	2110	1160	805	696
16	869	1600	1850	978	928	1000	933	988	2110	1160	833	650
17	869	2120	1850	953	926	1000	934	991	1770	1160	832	633
18	870	2120	1850	950	925	1000	961	992	1290	1160	832	631
19	871	2120	1850	951	924	1000	1000	990	1290	1160	825	634
20	873	2240	1850	951	955	1000	1010	1020	1290	1170	834	693
21	877	2300	1860	941	978	1000	1010	1070	1290	1170	844	808
22	877	2310	1860	942	955	1010	1050	1080	1290	1170	815	807
23	878	2270	1860	942	921	1010	1040	1080	1290	1170	779	809
24	1120	2280	1860	941	920	1020	963	1100	1300	1170	761	806
25	1340	2270	1860	937	824	942	906	1110	1290	1170	762	860
26	1340	2270	1860	934	743	866	904	1110	1190	1240	762	807
27	1420	2310	1860	932	775	843	906	1100	1130	1340	782	807
28	1410	2300	1850	945	839	879	914	1120	1130	1300	796	807
29	1640	2300	1850	1000	---	927	873	1110	1130	1300	796	810
30	1830	2310	1860	1110	---	964	850	1110	1130	1300	791	811
31	1820	---	1860	1350	---	959	---	1100	---	1300	786	---
TOTAL	31155	56150	61600	34103	25166	29390	27912	31508	49860	36500	26783	24066
MEAN	1005	1872	1987	1100	899	948	930	1016	1662	1177	864	802
MAX	1830	2310	2310	1860	999	1100	1050	1120	5410	1340	1140	929
MIN	774	1380	1850	932	743	835	850	847	1100	1130	722	631
AC-FT	61800	111400	122200	67640	49920	58300	55360	62500	98900	72400	53120	47730
MEAN†	554	2463	1100	718	846	923	2024	1676	1748	800	505	388
CFSM†	1.90	8.43	3.77	2.46	2.90	3.16	6.93	5.74	5.99	2.74	1.73	1.33
IN.†	2.19	9.41	4.35	2.84	3.02	3.64	7.73	6.62	6.68	3.16	1.99	1.48
AC-FT†	34060	146500	67680	44160	47000	56740	120400	103100	104000	49180	31030	23080

CAL YR 1984 TOTAL 557903 MEAN 1524 MAX 3430 MIN 713 AC-FT 1107000 MEAN† 1501 CFSM† 5.14 IN.† 69.92 AC-FT† 1089000
WTR YR 1985 TOTAL 434193 MEAN 1190 MAX 5410 MIN 631 AC-FT 861200 MEAN† 1142 CFSM† 3.91 IN.† 53.10 AC-FT† 826900

† Adjusted for change in contents of Alder and La Grande Reservoirs.

12086500 NISQUALLY RIVER AT LA GRANDE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1965 to September 1985 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1965 to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT										
17...	1130	51	7.90	12.5	11.0	--	1	<0.10	<0.2	0.02
NOV										
07...	0950	48	6.50	8.0	11.7	--	21	0.20	0.2	0.01
DEC										
13...	1145	52	7.70	5.0	13.2	--	<1	0.10	0.2	0.01
JAN										
15...	1345	63	7.50	3.5	12.3	92	<1	0.20	0.3	0.05
FEB										
12...	1230	61	7.60	2.5	12.6	92	K17	0.20	0.3	0.03
MAR										
13...	1205	61	7.50	4.0	13.1	100	<1	0.20	0.3	0.02
APR										
15...	1550	63	7.70	5.0	13.0	105	<1	0.10	0.3	<0.01
MAY										
07...	1430	60	7.50	5.5	11.9	96	<1	0.10	0.3	<0.01
JUN										
11...	1315	50	7.60	8.0	11.2	95	<1	<0.10	0.2	<0.01
JUL										
11...	1300	47	7.60	10.0	10.7	96	<1	<0.10	<0.2	<0.01
AUG										
14...	1330	45	7.20	12.0	9.9	94	K2	<0.10	0.7	0.03
SEP										
10...	1515	45	7.40	14.5	9.1	91	K1	<0.10	0.2	0.06

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12089208 CENTRALIA POWER CANAL NEAR MCKENNA, WA

LOCATION.--Lat 46°54'01", long 122°29'50", in NE¼SW¼ sec.1, T.16 N., R.2 E., Thurston County, Hydrologic Unit 17110015, on right bank 500 ft downstream from headworks at dam, and 3.7 mi southeast of McKenna.

PERIOD OF RECORD.--March 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 330 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by headworks 500 ft upstream from station. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 887 ft^3/s Dec. 15, 1979, gage height, 7.39 ft; minimum observed, 31 ft^3/s Sept. 10-15, 1984, gage height, -0.55 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 824 ft^3/s June 7, gage height, 7.10 ft; minimum, 87 ft^3/s, Sept. 19, 20, gage height, 0.36 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	631	707	749	534	651	723	606	662	542	653	427
2	154	712	716	745	530	739	743	562	670	440	642	426
3	152	702	715	743	505	706	743	594	666	467	611	432
4	154	714	710	733	471	662	726	596	666	545	609	428
5	155	500	719	732	442	625	657	578	674	543	606	449
6	160	411	718	741	454	583	612	550	680	542	594	484
7	156	510	717	742	449	580	623	580	760	539	527	597
8	164	678	722	728	413	599	648	593	752	545	577	609
9	168	711	717	694	376	585	646	581	753	536	571	600
10	240	622	730	685	360	587	657	574	723	544	519	598
11	286	684	746	622	408	609	662	604	711	567	512	580
12	293	722	746	603	602	564	660	590	708	577	446	565
13	313	715	744	585	585	533	589	575	720	617	334	535
14	373	737	745	587	543	522	555	640	757	608	364	542
15	350	752	754	619	644	565	536	626	765	599	390	312
16	318	755	746	644	723	570	553	579	735	606	418	90
17	304	773	744	613	657	589	539	589	729	615	424	89
18	293	765	745	640	587	597	529	590	637	611	421	89
19	282	732	744	617	554	580	547	565	648	608	421	88
20	282	720	752	641	581	590	559	552	679	611	440	138
21	278	729	750	659	655	622	558	580	689	609	476	247
22	276	723	751	626	717	639	560	582	698	611	440	304
23	277	724	750	614	749	684	616	574	697	614	415	298
24	355	721	751	607	750	741	636	582	695	614	405	296
25	614	723	743	582	739	709	623	599	722	612	398	306
26	704	592	743	563	613	653	596	582	712	630	398	281
27	664	433	747	547	559	590	661	563	657	654	404	283
28	664	383	744	542	528	543	729	571	640	644	420	281
29	597	427	746	559	---	549	686	590	610	666	422	281
30	503	587	752	528	---	602	652	655	610	684	427	280
31	591	---	745	631	---	678	---	654	---	683	427	---
TOTAL	10281	19588	22859	19921	15728	19046	18824	18256	20825	18283	14711	10935
MEAN	332	653	737	643	562	614	627	589	694	590	475	365
MAX	704	773	754	749	750	741	743	655	765	684	653	609
MIN	152	383	707	528	360	522	529	550	610	440	334	88
AC-FT	20390	38850	45340	39510	31200	37780	37340	36210	41310	36260	29180	21690

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CAL YR 1984   TOTAL   217197   MEAN   593   MAX   777   MIN   31   AC-FT   430800
WTR YR 1985   TOTAL   209257   MEAN   573   MAX   773   MIN   88   AC-FT   415100
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12089500 NISQUALLY RIVER AT MCKENNA, WA

LOCATION.--Lat 46°56'01", long 122°33'35", in SE¼NW¼ sec.28, T.17 N., R.2 E., Thurston County, Hydrologic Unit 17110015, on left bank at downstream side of State Highway 507 bridge at McKenna, and at mile 21.8.

DRAINAGE AREA.--517 mi².

PERIOD OF RECORD.--October 1947 to September 1968, May 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 285.47 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1968, water-stage recorder at site 100 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Sept. 23-30. Records good. Flow regulated by Alder Reservoir (see sta 12085000) at mile 44.2 and La Grande Reservoir (see sta 12085500) at mile 42.5. Centralia Power Canal (see sta 12089208) diverts water 4.4 mi upstream from station, which is returned to river at powerplant 9.2 mi downstream from station. Minor diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--28 years (water years 1948-67, 1978-85), 1,354 ft³/s, 981,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,700 ft³/s Jan. 29, 1965, gage height, 13.00 ft at site then in use; minimum, 20 ft³/s Sept. 10, 11, 1965, Aug. 31, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,020 ft³/s June 8, gage height, 7.11 ft; minimum, 308 ft³/s Sept. 12, gage height, 1.63 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	602	1260	2340	1510	617	734	783	611	584	632	550	396
2	608	2300	2150	1440	616	729	735	627	617	716	480	398
3	608	2470	2030	1410	611	617	725	631	616	687	439	398
4	609	2580	1950	1220	660	652	666	620	614	609	436	404
5	609	2030	1860	754	636	622	640	620	618	611	435	403
6	608	1480	1810	738	629	623	644	618	621	612	427	421
7	610	1290	1800	733	631	628	660	611	1910	615	435	424
8	620	1020	1890	697	617	616	646	613	5530	609	439	394
9	621	994	1990	643	611	630	638	622	3150	611	433	388
10	635	1160	1780	617	630	620	644	621	1890	608	434	399
11	617	1460	1410	643	696	703	629	649	1560	584	430	388
12	595	1360	1400	641	897	618	608	630	1390	587	438	374
13	601	1590	1380	641	654	611	620	632	1430	566	436	392
14	609	1740	1390	650	621	625	622	636	1480	571	428	402
15	589	1290	1630	702	750	621	632	616	1490	578	435	524
16	594	1100	1510	654	653	617	638	625	1470	573	435	745
17	593	1690	1430	658	612	623	621	628	1290	561	429	768
18	593	1690	1360	641	611	615	613	626	780	565	429	760
19	595	1750	1310	638	620	625	630	621	753	566	417	723
20	594	1830	1290	648	640	634	620	621	717	562	411	644
21	592	1940	1300	650	614	626	607	619	695	561	384	631
22	592	1890	1430	640	756	628	626	620	682	560	402	565
23	593	1940	1600	625	818	773	707	625	681	557	398	553
24	628	2230	1650	611	832	950	714	628	681	557	386	558
25	741	2010	1540	612	804	760	613	626	649	560	389	608
26	834	2030	1470	608	625	648	599	623	594	581	391	565
27	964	2600	1450	611	615	623	854	634	542	678	395	560
28	914	3080	1430	614	623	632	1120	639	549	657	396	562
29	1100	2970	1430	646	---	636	834	640	574	645	398	562
30	1410	2620	1700	652	---	645	660	666	570	624	397	563
31	1300	---	1650	968	---	833	---	617	---	630	398	---
TOTAL	21778	55394	50360	23515	18699	20517	20348	19415	34727	18633	13130	15472
MEAN	703	1846	1625	759	668	662	678	626	1158	601	424	516
MAX	1410	3080	2340	1510	897	950	1120	666	5530	716	550	768
MIN	589	994	1290	608	611	611	599	611	542	557	384	374
AC-FT	43200	109900	99890	46640	37090	40700	40360	38510	68880	36960	26040	30690

CAL YR 1984 TOTAL 473255 MEAN 1293 MAX 6700 MIN 413 AC-FT 938700
WTR YR 1985 TOTAL 311988 MEAN 855 MAX 5530 MIN 374 AC-FT 618800

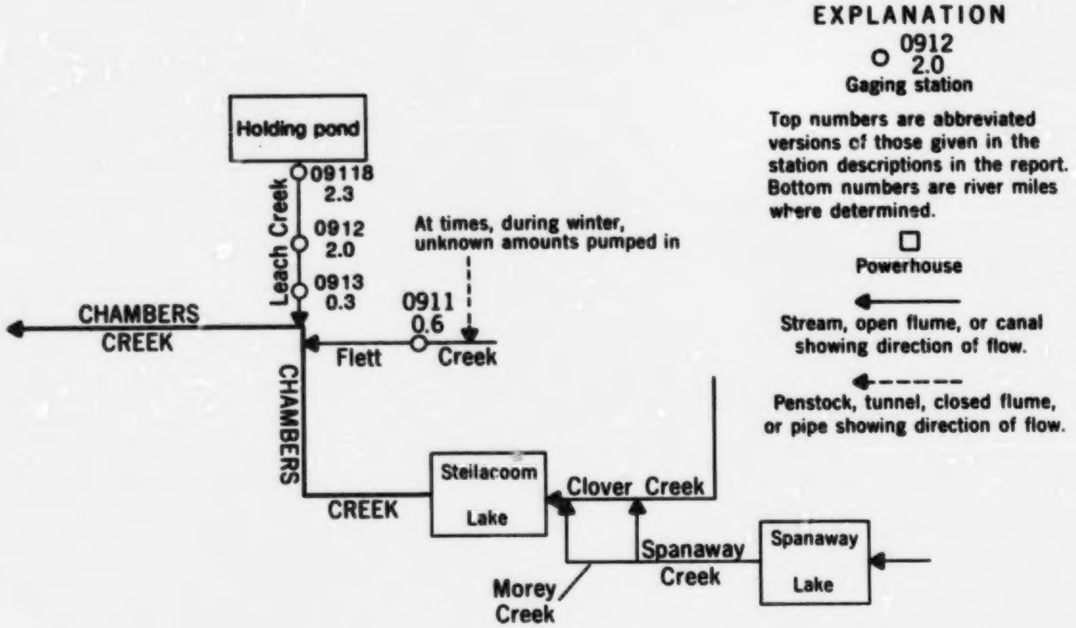
EXPLANATION
0912
2.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Holding pond
09118
2.3
Leach Creek
0912
2.0
0913
0.3
At times, during winter, unknown amounts pumped in
0911
0.6
CHAMBERS CREEK
Flett
Creek
CHAMBERS
CREEK
Steilacoom Lake
Clover Creek
Spanaway Creek
Spanaway Lake
Morey Creek

Figure 10.--Gaging stations in Chambers Creek basin.

12091100 FLETT CREEK AT TACOMA, WA

LOCATION.--Lat 47°11'23", long 122°31'08", in NE¼SW¼ sec.26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank at 75th Street, 0.6 mi upstream from mouth and 0.7 mi west of city limits of Tacoma.

DRAINAGE AREA.--7.33 mi², excludes 0.68 mi² storm drainage diverted to Leach Creek basin but does not include some urban storm drainage diverted into the basin.

PERIOD OF RECORD.--June 1959 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 200 ft, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 14, 15. Records poor. Storm sewer drainage upstream from station. Several diversions for irrigation and industrial use. At times during winter months 1,000 gpm are pumped into creek for short intervals from Mountain View Memorial Park. Since October 1979, Flett Creek flood control retention ponds store and release flood water upstream from station. Chemical analyses October 1964 to September 1965.

AVERAGE DISCHARGE.--26 years, 10.0 ft³/s, 7,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132 ft³/s Mar. 5, 1972, gage height, 2.97 ft, from rating curve extended above 45 ft³/s on basis of computation of peak flow over weir at gage height 2.82 ft; minimum, 0.29 ft³/s Aug. 27, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42 ft³/s Nov. 2, gage height, 2.53 ft; minimum daily, 0.54 ft³/s Aug. 22-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	7.9	27	27	12	17	18	11	8.8	6.3	2.4	.63
2	3.6	19	22	27	13	18	16	11	9.7	6.4	2.5	.63
3	3.6	20	16	27	12	19	16	11	10	5.9	2.7	.63
4	4.4	34	16	25	11	20	15	11	11	5.3	2.7	.68
5	4.9	31	16	25	11	19	15	10	9.7	5.6	2.7	.64
6	4.0	23	14	24	11	19	14	10	12	5.1	2.7	1.8
7	4.4	15	15	24	13	18	13	9.6	14	5.6	3.6	3.3
8	5.1	14	17	24	12	15	13	9.2	14	5.1	6.1	1.7
9	7.2	14	15	24	12	14	12	9.5	14	4.8	2.3	2.8
10	11	17	16	23	14	14	12	8.8	14	4.5	3.5	3.3
11	11	25	18	23	19	14	12	9.1	13	4.3	2.9	2.7
12	11	29	23	22	19	14	11	9.2	10	4.0	2.2	2.0
13	12	28	22	22	18	13	11	9.1	9.5	4.4	1.6	2.8
14	12	22	23	20	20	13	10	10	11	4.2	1.5	3.2
15	11	14	16	19	21	13	11	9.7	10	4.3	1.1	3.9
16	11	14	16	18	21	13	10	9.1	9.6	3.6	.78	2.8
17	11	14	23	18	21	12	9.8	9.1	9.4	3.7	1.1	3.0
18	11	14	40	16	20	12	10	8.7	8.6	3.8	.68	2.8
19	8.1	13	29	16	19	12	9.9	8.5	8.4	3.5	.63	2.8
20	6.8	13	26	17	19	12	9.5	8.8	7.5	3.1	.63	2.6
21	5.8	13	26	17	18	13	9.4	8.7	7.7	3.6	.57	2.8
22	5.4	13	26	17	17	13	10	8.8	7.1	3.1	.54	2.7
23	5.1	14	25	16	16	18	12	8.5	7.0	2.9	.54	2.6
24	5.7	13	24	15	16	19	10	8.7	6.9	2.9	.54	2.8
25	5.6	13	24	14	16	19	10	8.4	6.7	2.9	.54	2.9
26	5.4	13	24	14	14	19	11	8.1	6.4	2.8	.54	2.8
27	5.1	18	25	13	14	19	13	8.4	5.8	2.7	.54	3.5
28	6.0	22	24	13	14	19	13	8.8	6.5	2.7	.54	4.9
29	5.5	26	26	13	---	19	13	9.9	6.5	2.6	.54	4.2
30	5.7	33	28	12	---	18	11	10	6.7	2.4	.69	3.2
31	6.2	---	27	12	---	18	---	8.8	---	2.4	.64	---
TOTAL	218.6	558.9	689	597	443	495	360.6	289.5	281.5	124.5	50.54	77.11
MEAN	7.05	18.6	22.2	19.3	15.8	16.0	12.0	9.34	9.38	4.02	1.63	2.57
MAX	12	34	40	27	21	20	18	11	14	6.4	6.1	4.9
MIN	3.6	7.9	14	12	11	12	9.4	8.1	5.8	2.4	.54	.63
AC-FT	434	1110	1370	1180	879	982	715	574	558	247	100	153

CAL YR 1984	TOTAL	5950.1	MEAN	16.3	MAX	42	MIN	1.6	AC-FT	11800
WTR YR 1985	TOTAL	4185.25	MEAN	11.5	MAX	40	MIN	.54	AC-FT	8300

12091180 LEACH CREEK AT HOLDING POND, AT FIRCREST, WA

LOCATION.--Lat 47°13'29", long 122°30'32", in NE¼NE¼ sec.14, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on right bank at holding pond dam, 0.2 mi north of southern city limits of Fircrest, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--4.59 mi², includes 0.68 mi² of storm drainage from Flett Creek basin.

PERIOD OF RECORD.--July 1967 to current year.

REVISED RECORDS.--WDR WA-77-1: 1975(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 200 ft above National Geodetic Vertical Datum of 1929 (levels by city of Tacoma).

REMARKS.--Estimated daily discharges: Nov. 2, 3. Records poor. Drainage into basin influenced by urbanization of area. Flow can be regulated by manually operated gate in flood-control dam. Storage is not retained and observed annual runoff closely represents natural runoff of basin. No known diversion upstream from station.

AVERAGE DISCHARGE.--18 years, 4.12 ft³/s, 2,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 118 ft³/s Dec. 15, 1979, gage height, 12.06 ft, from rating curve extended above 45 ft³/s; minimum, little or no flow Aug. 8, 9, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64 ft³/s Oct. 10, Nov. 1, gage height, 10.41 ft from crest-stage gage; minimum daily, 1.1 ft³/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	27	2.5	2.3	4.5	11	3.0	2.2	2.1	1.9	2.1	1.4
2	2.2	35	2.1	2.1	2.4	2.2	2.7	4.0	2.1	2.0	1.6	1.3
3	2.3	25	1.8	2.1	1.7	4.2	3.7	2.9	3.9	1.9	1.6	1.3
4	4.3	21	1.8	2.0	1.7	8.3	2.5	2.3	2.4	1.9	1.6	1.3
5	1.8	2.9	1.8	1.8	1.9	2.6	2.5	2.1	1.9	1.9	1.5	2.6
6	2.4	4.3	1.7	1.8	3.7	2.1	2.4	2.5	19	1.8	1.3	14
7	1.9	4.2	8.8	2.0	3.6	2.0	2.3	2.0	27	1.7	7.1	4.3
8	9.8	7.8	18	1.8	3.3	2.0	2.4	2.1	2.4	1.7	2.0	1.7
9	5.1	2.7	4.4	1.7	3.9	1.9	2.6	2.0	2.1	1.7	1.5	5.1
10	41	26	6.7	1.7	15	1.8	2.6	3.2	2.1	1.8	5.9	5.8
11	4.4	25	4.3	1.7	20	1.9	2.8	2.0	2.0	1.8	1.5	1.7
12	8.0	7.5	9.3	1.7	4.0	1.9	2.5	2.0	2.0	1.7	1.4	1.5
13	14	12	2.6	1.7	2.3	2.0	2.6	3.7	3.9	1.7	1.4	3.9
14	4.4	2.7	17	5.4	6.3	2.1	2.5	2.6	5.2	1.7	1.3	4.7
15	1.8	2.3	3.0	2.1	2.7	2.0	2.9	2.1	3.0	1.7	1.3	1.8
16	1.7	2.2	2.4	1.9	2.1	2.0	2.3	2.0	1.9	1.7	1.4	2.1
17	2.0	5.8	5.6	1.8	1.9	2.0	2.7	1.9	1.8	1.7	1.3	1.5
18	1.7	6.2	2.0	1.8	1.8	2.1	3.1	1.8	1.7	1.7	1.3	1.4
19	1.6	4.6	1.8	4.7	4.5	2.3	2.1	1.8	1.7	1.8	1.3	1.3
20	1.6	2.7	1.8	3.4	2.0	2.5	2.0	1.8	1.8	1.6	1.5	1.3
21	1.6	2.0	5.3	1.9	1.8	3.5	2.0	1.8	1.9	1.6	1.4	1.3
22	1.6	1.7	4.4	1.8	2.2	5.8	5.8	1.9	1.8	1.6	1.3	1.3
23	2.2	12	2.1	1.8	1.8	24	3.4	2.3	1.8	1.7	1.3	1.3
24	1.6	4.4	1.8	1.8	2.5	8.5	3.7	1.9	1.9	1.7	1.5	1.3
25	3.9	3.2	1.8	1.7	1.8	3.1	6.0	1.7	1.8	1.7	1.4	1.3
26	8.1	2.5	3.2	1.7	1.8	4.4	9.1	1.7	1.9	1.7	1.3	1.3
27	5.1	31	9.9	1.8	1.8	4.6	6.2	1.7	2.0	1.6	1.3	1.3
28	2.8	24	2.2	1.8	2.2	2.5	2.3	7.1	2.0	1.6	1.3	1.5
29	1.9	12	29	1.7	---	2.7	2.2	5.0	1.9	1.6	1.4	1.1
30	6.0	8.9	15	1.7	---	8.7	2.1	2.4	1.8	1.6	3.0	1.3
31	1.8	---	2.9	1.7	---	3.9	---	2.1	---	1.9	1.6	---
TOTAL	150.7	328.6	177.0	64.9	105.2	130.6	95.0	76.6	108.8	53.7	56.7	73.0
MEAN	4.86	11.0	5.71	2.09	3.76	4.21	3.17	2.47	3.63	1.73	1.83	2.43
MAX	41	35	29	5.4	20	24	9.1	7.1	27	2.0	7.1	14
MIN	1.6	1.7	1.7	1.7	1.7	1.8	2.0	1.7	1.7	1.6	1.3	1.1
AC-FT	299	652	351	129	209	259	188	152	216	107	112	145

CAL YR 1984 TOTAL 1306.4 MEAN 4.94 MAX 47 MIN 1.1 AC-FT 3580
WTR YR 1985 TOTAL 1420.8 MEAN 3.89 MAX 41 MIN 1.1 AC-FT 2820

0111

12091200 LEACH CREEK NEAR FIRCREST, WA

LOCATION.--Lat 47°13'18", long 122°30'29", in lot 24, block 14, SE¼NE¼ sec.14, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on left bank 1.0 mi south of Fircrest, and 2 mi upstream from mouth.

DRAINAGE AREA.--4.73 mi² includes 0.68 mi² storm drainage from Flett Creek basin.

PERIOD OF RECORD.--March 1957 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and metal weir control. Prior to Oct. 19, 1979, at site 20 ft downstream at same datum. Elevation of gage is 190 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Since Oct. 1, 1961, flow may be regulated at dam upstream from station. Storage is not retained and observed annual runoff closely represents natural runoff of basin. Drainage into basin influenced by urbanizing of area. No known diversion upstream from station.

AVERAGE DISCHARGE.--28 years, 4.38 ft³/s, 12.58 in/yr, 3,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 198 ft³/s Feb. 28, 1972, gage height, 3.51 ft, from rating curve extended above 60 ft³/s; minimum, 0.1 ft³/s Sept. 22, 1965, gage height, 1.02 ft at site in use; minimum gage height, 0.15 ft June 24, 1980, due to regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft³/s Nov. 1, gage height, 2.05 ft; minimum, 1.2 ft³/s Aug. 6, gage height, 0.21 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	30	3.2	3.7	5.8	13	3.7	2.3	2.3	2.0	2.4	1.8
2	2.2	39	2.8	3.4	3.4	3.2	3.5	4.0	2.2	2.1	1.8	1.7
3	2.3	31	2.6	3.4	2.7	7.0	4.5	2.9	4.0	2.1	1.7	1.7
4	3.9	24	2.6	3.3	2.7	8.5	3.2	2.3	2.6	2.1	1.7	1.7
5	2.1	3.6	2.6	3.2	2.8	3.5	3.2	2.2	2.2	2.1	1.7	3.2
6	2.4	4.8	2.5	3.2	4.8	3.1	3.2	2.6	21	2.0	1.7	16
7	2.1	4.7	8.4	3.4	4.8	2.9	3.2	2.2	28	2.0	7.7	5.0
8	10	8.5	19	3.2	4.3	2.9	3.2	2.3	2.5	1.9	2.4	2.1
9	5.5	3.5	5.5	3.1	5.1	2.9	3.3	2.2	2.2	1.9	1.9	5.8
10	46	25	7.9	3.1	18	2.8	3.3	3.1	2.2	2.1	6.6	6.7
11	5.4	26	5.5	2.9	25	2.8	3.4	2.0	2.1	2.1	2.0	2.0
12	9.2	7.4	12	3.1	4.9	2.8	3.3	2.0	2.1	2.0	2.0	1.9
13	16	14	3.5	2.9	3.2	2.8	3.2	3.5	3.8	1.9	2.0	4.5
14	5.2	3.1	19	7.3	7.9	3.0	3.1	2.6	5.1	1.9	1.9	5.3
15	2.6	2.7	4.7	3.5	3.6	2.9	3.5	2.2	3.1	1.9	1.9	2.1
16	2.4	2.6	4.0	3.0	3.1	2.9	3.3	2.1	2.1	1.9	1.9	2.6
17	2.6	5.6	7.4	2.8	3.0	2.9	3.8	2.0	2.1	1.9	1.8	1.9
18	2.4	5.7	3.0	2.7	2.9	2.9	4.4	2.0	2.0	1.9	1.8	1.8
19	2.3	4.5	2.9	6.2	5.8	3.1	3.2	2.0	2.0	2.0	1.9	1.7
20	2.2	3.2	2.9	4.4	3.1	3.2	3.1	2.0	2.0	1.9	1.9	1.7
21	2.2	2.7	6.8	2.9	2.9	4.3	3.1	2.1	2.1	1.9	1.8	1.7
22	2.2	2.4	6.3	2.8	3.2	6.9	7.2	2.1	2.1	1.9	1.8	1.7
23	2.8	13	3.8	2.7	2.9	30	4.5	2.4	2.0	2.0	1.8	1.7
24	2.3	4.5	3.5	2.7	3.5	10	4.6	2.1	2.1	2.0	1.9	1.7
25	4.2	3.6	3.5	2.7	2.9	3.9	6.2	2.0	2.1	2.0	1.8	1.7
26	8.6	3.0	4.8	2.6	2.9	5.8	8.8	2.0	2.1	1.9	1.7	1.7
27	5.6	32	12	2.7	2.8	5.2	5.9	1.9	2.3	1.9	1.7	1.8
28	3.3	25	3.2	2.6	3.2	3.4	2.4	8.6	2.2	1.8	1.7	1.6
29	2.3	12	35	2.6	---	3.6	2.3	4.9	2.1	1.9	1.8	1.4
30	6.5	8.9	20	2.6	---	10	2.2	2.4	2.0	1.9	3.6	1.7
31	2.3	---	4.3	2.6	---	5.0	---	2.3	---	2.0	1.9	---
TOTAL	171.3	356.0	225.2	101.3	141.2	167.2	115.8	81.3	116.7	60.9	70.2	87.9
MEAN	5.53	11.9	7.26	3.27	5.04	5.39	3.86	2.62	3.89	1.96	2.26	2.93
MAX	46	39	35	7.3	25	30	8.8	8.6	28	2.1	7.7	16
MIN	2.1	2.4	2.5	2.6	2.7	2.8	2.2	1.9	2.0	1.8	1.7	1.4
CFSM	1.17	2.52	1.53	.69	1.07	1.14	.82	.55	.82	.41	.48	.62
IN.	1.35	2.80	1.77	.80	1.11	1.31	.91	.64	.92	.48	.55	.69
AC-FT	340	706	447	201	280	332	230	161	231	121	139	174

CAL YR 1984 TOTAL 2089.6 MEAN 5.71 MAX 56 MIN 2.1 CFSM 1.21 IN. 16.43 AC-FT 4140
WTR YR 1985 TOTAL 1695.0 MEAN 4.64 MAX 46 MIN 1.4 CFSM .98 IN. 13.33 AC-FT 3360

12091300 LEACH CREEK NEAR STEILACOOM, WA

LOCATION.--Lat 47°11'54", long 122°31'17", in NW¼NW¼ sec. 26, T.20 N., R.2 E., Pierce County, Hydrologic Unit 17110019, on left bank 0.3 mi upstream from mouth, and 4.1 mi northeast of Steilacoom.

DRAINAGE AREA.--6.56 mi^2, includes 0.68 mi^2 storm drainage from Flett Creek basin. Area used prior to July 1967, 5.88 mi^2.

PERIOD OF RECORD.--February 1957 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 140 ft, from topographic map. Prior to June 27, 1973, water-stage recorder at site 150 ft upstream at different datum. Supplementary water-stage recorder at site 50 ft downstream at different datum used Feb. 4, 1963, to Feb. 27, 1964. June 27, 1973, to Mar. 14, 1975, nonrecording gage at site 350 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 8-10, 26-28, Nov. 1-4, 27-30, Dec. 7-12, Jan. 12 to Mar. 20, Apr. 26-28, May 24-29, June 6-20, July 9-26, Aug. 8, 9, 30, Sept. 6, 7, 28, 29. Records poor. Drainage basin influenced by urbanizing of area. Some pumping for community use upstream from gage. Flow can be regulated by manually operated gate in flood control dam. Storage is not retained and observed annual runoff closely represents natural runoff of basin.

AVERAGE DISCHARGE.--28 years, 10.4 ft^3/s, 7,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 238 ft^3/s Mar. 5, 1972, gage height, 6.88 ft, from high-water mark in well, from rating curve extended above 60 ft^3/s, site and datum then in use; maximum gage height, 10.92 ft Feb. 28, 1972, backwater from partially plugged culvert, site and datum then in use; minimum discharge, 2.0 ft^3/s July 3, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 59 ft^3/s Nov. 2; minimum daily, 4.9 ft^3/s July 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	31	10	7.9	11	6.6	9.5	8.6	10	5.4	7.0	6.5
2	7.4	59	8.8	8.6	8.5	8.1	7.4	15	9.9	6.1	5.7	6.5
3	7.4	37	8.3	7.9	7.0	15	9.1	12	11	5.3	5.3	6.1
4	9.7	14	7.9	7.6	7.0	18	7.4	8.6	15	5.3	5.3	6.4
5	8.0	8.5	7.9	7.3	7.3	9.0	7.1	8.3	9.8	5.3	5.3	6.2
6	8.2	7.0	7.9	6.1	10	7.0	7.0	10	24	5.3	5.3	21
7	8.0	9.6	20	5.7	10	5.2	7.0	8.5	36	5.3	16	13
8	15	8.6	28	5.5	9.2	5.2	7.0	8.7	20	4.9	9.0	6.8
9	11	14	9.0	5.3	17	5.2	7.1	8.3	11	5.0	7.3	12
10	56	40	14	5.3	25	5.0	7.1	10	11	5.6	14	14
11	19	45	9.5	5.3	37	5.0	7.5	8.7	10	5.6	7.4	6.9
12	17	17	20	6.6	25	5.0	7.1	7.9	13	5.0	7.4	6.2
13	36	21	8.8	8.0	13	5.0	7.0	10	18	5.0	7.4	10
14	15	9.9	23	13	24	5.4	7.0	10	21	5.0	7.1	12
15	9.7	9.3	12	12	17	5.2	7.3	8.3	12	5.0	7.0	8.6
16	8.8	9.3	9.9	6.4	6.0	5.2	8.2	8.3	6.6	5.0	7.0	7.8
17	8.8	11	12	6.0	5.7	5.2	8.0	8.2	6.5	5.0	7.0	7.2
18	8.9	18	8.4	6.4	5.6	5.2	10	7.9	6.4	5.0	7.0	7.2
19	8.1	15	7.6	11	6.9	6.8	8.1	7.9	6.3	5.2	7.0	7.0
20	7.9	13	7.4	8.6	5.0	8.1	7.8	7.9	6.2	5.0	7.0	6.9
21	7.9	12	15	6.0	5.5	9.4	7.4	7.9	5.7	5.0	7.0	6.9
22	7.9	11	14	5.8	6.5	12	12	8.2	5.6	5.0	7.0	6.5
23	8.5	20	11	5.8	6.1	37	12	8.8	5.5	5.2	7.0	6.1
24	8.4	12	8.9	5.8	7.1	16	8.1	8.3	5.7	5.2	7.1	6.1
25	11	9.7	8.8	5.6	6.1	9.2	16	7.9	5.7	5.2	6.5	6.6
26	18	9.3	8.4	5.8	6.1	8.2	26	7.7	5.7	5.5	6.5	7.0
27	15	39	22	5.9	5.8	12	19	24	5.6	5.7	6.5	6.5
28	12	32	11	5.6	6.3	7.5	14	20	5.7	5.7	6.5	5.8
29	10	19	36	5.4	---	7.3	8.8	14	5.7	5.3	6.5	6.3
30	15	13	25	5.4	---	17	8.8	15	5.7	5.3	8.4	6.6
31	11	---	9.2	5.4	---	9.6	---	10	---	5.3	7.6	---
TOTAL	402.2	574.2	409.7	213.0	306.7	285.6	285.8	314.9	320.3	162.7	228.1	242.7
MEAN	13.0	19.1	13.2	6.87	11.0	9.21	9.53	10.2	10.7	5.25	7.36	8.09
MAX	56	59	36	13	37	37	26	24	36	6.1	16	21
MIN	7.4	7.0	7.4	5.3	5.0	5.0	7.0	7.7	5.5	4.9	5.3	5.8
AC-FT	798	1140	813	422	608	566	567	625	635	323	452	481

CAL YR 1984	TOTAL	5383.4	MEAN	14.7	MAX	85	MIN	7.0	AC-FT	10680
WTR YR 1985	TOTAL	3745.9	MEAN	10.3	MAX	59	MIN	4.9	AC-FT	7430

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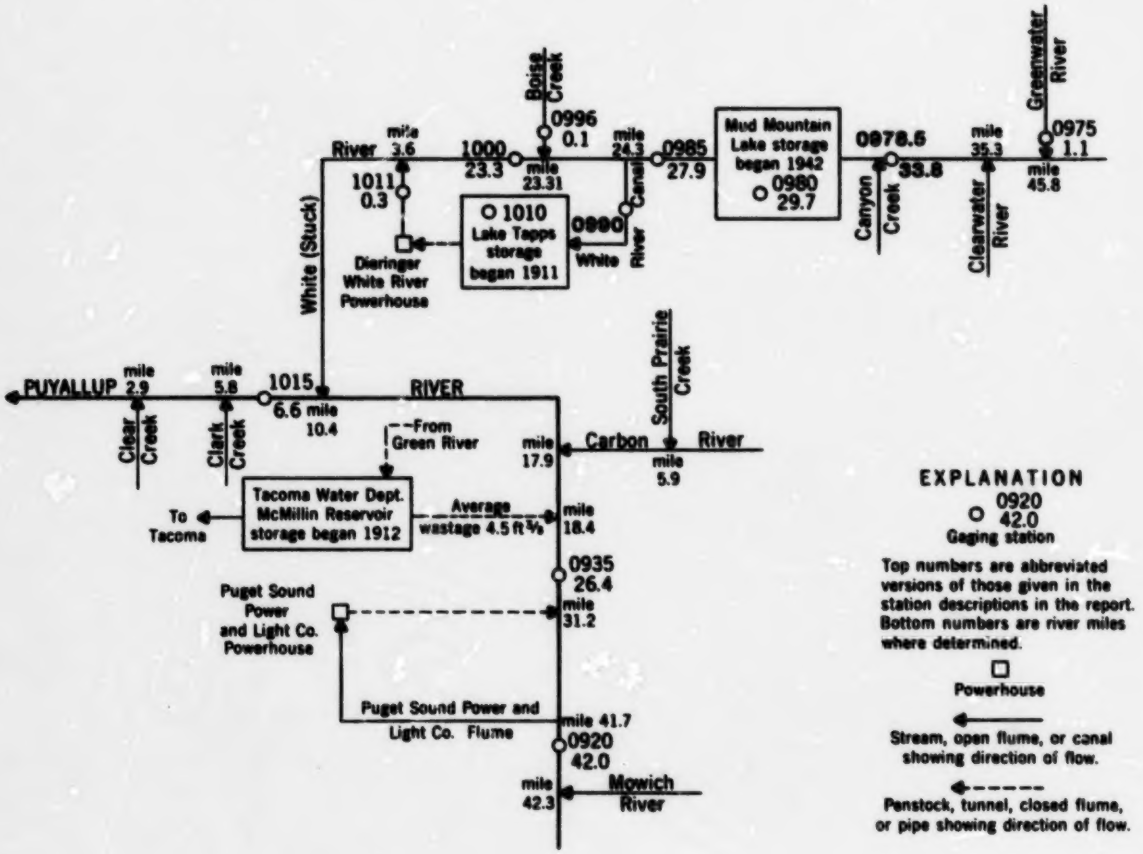
Boise Creek
0996
0.1
Greenwater River
0975
1.1
mile 45.8
mile 35.3
Clearwater River
0978.5
33.8
Canyon Creek
Mud Mountain Lake storage began 1942
0980
29.7
0985
27.9
mile 24.3
Canal
White River
0990
1000
23.3
mile 23.31
River
mile 3.6
1011
0.3
1010
Lake Tapps storage began 1911
Dieringer White River Powerhouse
White (Stuck)
PUYALLUP
mile 2.9
mile 5.8
1015
6.6
mile 10.4
RIVER
Clear Creek
Clark Creek
From Green River
South Prairie Creek
mile 17.9
Carbon River
mile 5.9
Tacoma Water Dept. McMillin Reservoir storage began 1912
To Tacoma
Average wastage 4.5 ft³/s
mile 18.4
0935
26.4
Puget Sound Power and Light Co. Powerhouse
mile 31.2
Puget Sound Power and Light Co. Flume
mile 41.7
0920
42.0
mile 42.3
Mowich River
EXPLANATION
0920
42.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 11.--Gaging stations in Puyallup River basin.

12092000 PUYALLUP RIVER NEAR ELECTRON, WA

LOCATION.--Lat 46°54'14", long 122°02'02", in SE¼NW¼ sec.3, T.16 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank 1,000 ft upstream from Puget Sound Power & Light Co.'s flume headworks, 0.3 mi downstream from Mowich River, 9.8 mi southeast of Electron, and at mile 42.0.

DRAINAGE AREA.--92.8 mi².

PERIOD OF RECORD.--October 1908 to September 1926, October 1944 to September 1949, October 1957 to current year. October 1926 to September 1933 (monthly discharge only) published in State of Washington Water-Supply Bulletin No. 6.

REVISED RECORDS.--WSP 1092: 1946(M). WSP 1346: 1913, 1916-17(M), 1918-23, drainage area. WSP 1566: 1945(M), 1947(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,632.7 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1913, nonrecording gage, and Jan. 1, 1913, to Sept. 30, 1926, Oct. 1, 1944, to Sept. 30 1949, and Oct. 1, 1957, to Nov. 22, 1959 (gage destroyed by flood), water-stage recorder, at sites near present gage at different datums. Aug. 19, 1960, to Dec. 23, 1980, at site 100 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 19-21, June 7-10. Records good except those above 3,000 ft³/s, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--58 years (water years 1909-33, 1945-49, 1958-85), 527 ft³/s, 77.12 in/yr, 381,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s Nov. 22, 1959, gage height, 11.9 ft, from floodmarks, site and datum then in use, result of slope-area measurement; minimum daily, 100 ft³/s Dec. 13, 14, 1972, Oct. 28-30, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	unknown	*4,060	*6.19	No other peak greater than base discharge.			

Minimum discharge, 144 ft³/s Feb. 11, gage height, 1.99 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	427	374	209	185	268	426	547	652	524	581	296
2	215	1280	329	205	182	238	457	642	655	654	542	287
3	278	1070	297	213	178	222	567	713	668	754	635	320
4	326	854	277	228	175	221	472	595	819	805	651	425
5	232	603	261	241	170	206	415	512	782	723	582	696
6	198	544	248	241	159	198	411	459	812	626	562	724
7	336	511	266	253	161	190	492	427	2950	731	562	430
8	519	450	375	253	156	186	579	395	2670	813	468	332
9	510	415	350	238	151	185	666	366	1510	886	361	310
10	586	502	313	224	149	184	763	378	940	865	391	333
11	398	612	279	214	224	182	808	359	859	722	368	270
12	362	663	273	208	231	182	778	326	927	682	445	256
13	406	715	259	204	184	176	712	335	887	635	498	260
14	301	607	309	230	213	179	709	374	958	634	567	249
15	241	493	313	265	282	181	694	359	952	671	566	238
16	201	416	266	253	223	190	701	486	760	670	580	339
17	189	382	246	294	201	207	597	750	769	659	599	613
18	176	435	209	305	191	217	515	892	875	700	568	421
19	166	413	195	298	195	219	445	843	944	740	492	336
20	160	390	185	321	202	227	393	732	928	731	428	291
21	154	346	200	293	210	218	349	705	779	646	393	301
22	153	314	372	270	303	204	331	790	712	639	428	280
23	154	434	425	258	293	268	349	890	621	720	483	258
24	164	397	357	252	364	245	313	948	536	675	552	277
25	932	339	308	242	330	211	297	1020	494	620	534	299
26	690	305	281	230	286	198	324	819	537	650	582	310
27	468	533	262	221	257	193	726	721	574	657	514	276
28	391	580	241	210	249	184	808	665	564	667	457	243
29	310	507	238	200	---	180	634	810	578	739	431	234
30	272	441	254	195	---	339	549	842	510	716	371	232
31	239	---	225	186	---	416	---	712	---	656	310	---
TOTAL	9915	15978	8787	7454	6104	6714	16280	19412	27222	21610	15501	10136
MEAN	320	533	283	240	218	217	543	626	907	697	500	338
MAX	932	1280	425	321	364	416	808	1020	2950	886	651	724
MIN	153	305	185	186	149	176	297	326	494	524	310	232
CFSM	3.45	5.74	3.05	2.59	2.35	2.34	5.85	6.75	9.77	7.51	5.39	3.64
IN.	3.97	6.40	3.52	2.99	2.45	2.69	6.53	7.78	10.91	8.66	6.21	4.06
AC-FT	19670	31690	17430	14790	12110	13320	32290	38500	53990	42860	30750	20100

CAL YR 1984 TOTAL 191684 MEAN 524 MAX 3270 MIN 153 CFSM 5.65 IN. 76.84 AC-FT 380200

WTR YR 1985 TOTAL 165113 MEAN 452 MAX 2950 MIN 149 CFSM 4.87 IN. 66.19 AC-FT 327500

12093500 PUYALLUP RIVER NEAR ORTING, WA

LOCATION.--Lat 47°02'22", long 122°12'24", in SW¼SW¼ sec.17, T.18 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on right bank 600 ft downstream from highway bridge, 4.0 mi south of Orting, 8.5 mi upstream from Carbon River, and at mile 26.4.

DRAINAGE AREA.--172 mi².

PERIOD OR RECORD.--September 1931 to current year.

REVISED RECORDS.--WSP 932: 1937-39. WSP 962: 1934. WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 352.5 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 6, 1946, at site 600 ft upstream at datum 8.93 ft higher. Supplementary water-stage recorder 200 ft upstream at datum 7.1 ft higher than present gage datum, used at times during period in 1942-46. Feb. 6, 1946, to Mar. 12, 1965, at present site at datum 5.0 ft higher.

REMARKS.--Estimated daily discharges: Oct. 13-15, Dec. 18-21. Records good. Up to 400 ft³/s diverted for Electron powerplant of Puget Sound Power and Light Co. which is returned to river 4.8 mi upstream from gage. Minor regulation by Electron powerplant.

AVERAGE DISCHARGE.--54 years, 711 ft³/s, 56.14 in/yr, 515,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s Nov. 20, 1962, gage height, 11.82 ft, present datum, from rating curve extended above 8,600 ft³/s on basis of slope-area measurement at gage height 12.25 ft, present datum; minimum, 25 ft³/s Nov. 28, 1952; minimum daily, 59 ft³/s Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1900	*4,610	*8.19	No other peak greater than base discharge.			

Minimum discharge, 194 ft³/s Feb. 8; minimum daily discharge, 203 ft³/s Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238	495	645	442	264	478	606	637	723	369	657	319
2	260	1780	552	405	258	457	624	733	732	726	592	302
3	328	1570	486	393	244	416	769	857	735	909	685	328
4	359	1480	436	403	244	419	648	707	931	993	744	421
5	289	948	402	414	247	393	557	601	915	909	647	775
6	246	756	379	411	238	361	533	521	885	729	614	966
7	366	716	394	413	243	339	606	478	3500	844	642	545
8	538	596	571	403	241	319	707	438	2890	995	569	392
9	595	618	586	376	234	341	814	400	1760	1100	396	357
10	639	671	530	347	233	303	967	417	1350	1100	433	402
11	481	917	464	330	324	294	1030	397	1190	872	391	330
12	374	941	455	316	434	290	997	351	1260	809	451	299
13	435	1110	421	308	317	280	889	356	1240	725	510	293
14	365	1010	459	341	330	276	872	416	1300	708	599	288
15	310	768	523	390	509	276	848	387	1350	768	619	291
16	280	619	431	363	411	279	877	495	1040	762	639	306
17	254	533	398	406	356	296	726	788	997	737	669	799
18	238	592	326	415	326	304	626	969	1150	794	646	521
19	223	593	295	400	330	303	533	918	1250	846	547	399
20	217	586	280	447	354	322	470	777	1240	857	476	336
21	211	533	300	420	349	320	421	735	1020	745	413	340
22	204	466	629	387	483	312	405	830	914	695	439	319
23	203	621	760	366	491	406	462	945	773	821	497	293
24	219	661	656	352	605	425	439	1010	632	783	587	306
25	1070	536	546	335	578	370	429	1150	556	685	573	331
26	917	467	495	318	491	348	435	904	597	722	638	340
27	632	696	474	306	436	327	949	766	665	718	577	313
28	568	880	432	295	411	302	1160	705	633	718	489	276
29	450	825	456	287	---	290	825	902	658	830	466	261
30	411	746	593	271	---	472	674	1140	574	830	431	256
31	393	---	516	266	---	652	---	831	---	766	333	---
TOTAL	12313	23730	14890	11326	9981	10970	20898	21561	33470	25065	16969	11704
MEAN	397	791	480	365	356	354	697	696	1116	809	547	390
MAX	1070	1780	760	447	605	652	1160	1150	3500	1100	744	966
MIN	203	466	280	266	233	276	405	351	556	569	333	256
CFSM	2.31	4.60	2.79	2.12	2.07	2.06	4.05	4.05	6.49	4.70	3.18	2.27
IN.	2.66	5.13	3.22	2.45	2.16	2.37	4.52	4.66	7.24	5.42	3.67	2.53
AC-FT	24420	47070	29530	22470	19800	21760	41450	42770	66390	49720	33660	23210

CAL YR 1984 TOTAL 282715 MEAN 772 MAX 6340 MIN 203 CFSM 4.49 IN. 61.15 AC-FT 560800
WTR YR 1985 TOTAL 212877 MEAN 583 MAX 3500 MIN 203 CFSM 3.39 IN. 46.04 AC-FT 422200

12097500 GREENWATER RIVER AT GREENWATER, WA

LOCATION.--Lat 47°09'13", long 121°38'10", in NE¼NE¼ sec.10, T.19 N., R.9 E., Pierce County, Hydrologic Unit 17110014, on left bank at bridge crossing, 0.7 mi east of Greenwater, and at mile 1.1.

DRAINAGE AREA.--73.5 mi².

PERIOD OF RECORD.--September 1911 to August 1912 (fragmentary), May 1929 to September 1977, water years 1980-85 (June to October seasonal records). Published as "near Enumclaw" 1911-12.

REVISED RECORDS.--WSP 1716: 1947(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,720 ft, from river-profile survey. Prior to Aug. 10, 1912, nonrecording gages at sites approximately 500 ft upstream at different datums. May 1, 1929, to Aug. 14, 1934, water-stage recorder at site 1,400 ft upstream at different datum. Aug. 17, 1934, to Sept. 30, 1977, water-stage recorder at site 500 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. No regulation upstream from station.

AVERAGE DISCHARGE.--48 years (water years 1930-77), 211 ft³/s, 38.98 in/yr, 152,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft³/s Nov. 22, 1959, gage height, 7.67 ft site and datum then in use, from rating curve extended above 1,200 ft³/s on basis of slope-area measurement of peak flow; minimum, 23 ft³/s Oct. 7, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 2, 1977, reached a stage of 9.8 ft former site and datum, from floodmarks, discharge, about 10,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period June to October 1985, 693 ft³/s June 7, gage height, 4.89 ft; minimum, 33 ft³/s Oct. 9-11, gage height, 2.59 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1985
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	410	161	63	41	34
2	403	153	62	44	35
3	391	148	61	42	38
4	402	143	59	41	37
5	399	137	57	41	35
6	395	132	56	54	37
7	599	126	56	53	40
8	663	121	60	47	36
9	588	116	57	45	34
10	526	111	82	54	33
11	476	107	65	55	37
12	449	104	57	47	39
13	426	101	53	45	38
14	403	98	52	43	39
15	379	94	50	43	53
16	352	91	49	53	57
17	329	90	47	82	66
18	317	87	46	65	57
19	308	83	46	54	54
20	295	81	46	48	62
21	276	78	46	45	60
22	261	77	45	43	63
23	246	76	44	42	114
24	235	76	43	41	193
25	219	74	43	40	428
26	206	70	42	39	327
27	198	67	42	38	298
28	187	66	41	37	258
29	178	64	41	35	210
30	169	63	40	34	189
31	---	63	41	---	170
TOTAL	10685	3058	1592	1391	3171
MEAN	356	98.6	51.4	46.4	102
MAX	663	161	82	82	428
MIN	169	63	40	34	33
CFSM	4.84	1.34	.70	.63	1.39
IN.	5.41	1.55	.81	.70	1.60
AC-FT	21190	6070	3160	2760	6290

12097850 WHITE RIVER BELOW CLEARWATER RIVER, NEAR BUCKLEY, WA

LOCATION.--Lat 47°08'49", long 121°51'32", in NE¼SW¼ sec.12, T.19 N., R.7 E., King County, Hydrologic Unit 17110014, on right bank 300 ft upstream from Canyon Creek, 1.5 mi downstream from Clearwater River, 6.4 mi east of Buckley, and at mile 33.8.

DRAINAGE AREA.--375 mi².

PERIOD OF RECORD.--June 1974 to September 1976, March 1982 to current year.

REVISED RECORDS.--WDR WA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to March 1982, at datum 47.16 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s Dec. 2, 1975, gage height, 55.16 ft, present datum, from high-water mark in well; minimum, 265 ft³/s Nov. 4-6, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,650 ft³/s June 7, gage height, 51.53 ft; minimum, 272 ft³/s Feb. 4, gage height, 46.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369	482	754	591	525	904	1520	1760	1920	1530	838	468
2	375	984	658	586	506	827	1830	2000	1870	1590	769	456
3	399	1380	599	581	460	761	2500	2210	1880	1670	758	447
4	433	1390	564	587	397	743	2050	2030	2080	1710	815	475
5	425	1110	551	588	470	693	1720	1800	2070	1680	748	580
6	397	919	541	582	453	655	1600	1660	2070	1530	711	881
7	431	856	552	582	462	626	1730	1570	5800	1500	735	687
8	494	772	732	573	444	598	1980	1480	5400	1530	700	583
9	568	758	773	548	428	593	2340	1400	3750	1590	603	540
10	709	757	706	529	414	601	2800	1410	3040	1580	772	570
11	709	931	630	511	506	603	2740	1350	2740	1450	664	530
12	559	976	672	502	638	613	2600	1250	2780	1400	673	479
13	679	1100	629	496	528	607	2550	1250	2850	1340	681	483
14	578	1150	718	543	549	620	2620	1270	2630	1290	696	463
15	492	973	835	653	776	636	2710	1250	2550	1300	718	489
16	448	842	718	634	671	675	2840	1540	2380	1290	706	496
17	418	750	659	769	602	778	2520	2180	2320	1290	693	781
18	397	742	574	856	570	838	2180	2660	2410	1280	697	601
19	379	726	523	813	587	846	1870	2880	2550	1280	678	522
20	365	806	540	883	633	859	1650	2850	2590	1270	634	483
21	355	776	582	856	671	842	1470	2740	2390	1240	572	471
22	346	706	1170	814	1020	790	1360	2860	2200	1160	530	460
23	345	801	1510	775	1100	849	1360	3130	2010	1060	558	445
24	355	842	1250	744	1340	843	1280	3300	1830	1040	613	441
25	1010	747	1010	703	1290	758	1210	3010	1710	914	656	446
26	1050	682	884	663	1060	717	1200	2620	1690	899	651	448
27	752	669	808	632	930	690	1720	2430	1710	906	638	443
28	691	755	718	612	882	641	2410	2290	1660	893	590	417
29	597	836	705	576	---	608	2030	2190	1670	931	552	396
30	546	865	719	523	---	858	1800	2170	1580	955	541	385
31	503	---	646	524	---	1370	---	1980	---	918	497	---
TOTAL	16174	26083	22930	19829	18912	23042	60190	64520	74130	40016	20687	15366
MEAN	522	869	740	640	675	743	2006	2081	2471	1291	667	512
MAX	1050	1390	1510	883	1340	1370	2840	3300	5800	1710	839	881
MIN	345	482	523	496	397	593	1200	1250	1560	893	497	385
CFSM	1.39	2.32	1.97	1.71	1.80	1.98	5.35	5.55	6.59	3.44	1.78	1.37
IN.	1.60	2.59	2.27	1.97	1.88	2.29	5.97	6.40	7.35	3.97	2.05	1.52
AC-FT	32080	51740	45480	39330	37510	45700	119400	128000	147000	79370	41030	30480

CAL YR 1984	TOTAL	506936	MEAN	1385	MAX	10600	MIN	345	CFSM 3.69	IN. 50.29	AC-FT	1006000
WTR YR 1985	TOTAL	401879	MEAN	1101	MAX	5800	MIN	345	CFSM 2.94	IN. 39.87	AC-FT	797100

12098000 MUD MOUNTAIN LAKE NEAR BUCKLEY, WA

LOCATION.-- Lat 47°08'27", long 121°55'48", in NE¼NE¼ sec.17, T.19 N., R.7 E., Pierce County, Hydrologic Unit 17110014, on left bank of reservoir just upstream from Mud Mountain Dam on White River, 5 mi southeast of Buckley, 5.6 mi downstream from Clearwater River, and at mile 29.7.

DRAINAGE AREA.--400 mi².

PERIOD OF RECORD.--October 1943 to current year. Monthend contents only October 1943 to September 1944, publisned in WSP 1316. Prior to October 1970, published as Mud Mountain Reservoir near Buckley.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Lake, for flood control, is formed by earthfill dam. Embankment completed and storage began on small scale in 1942. Capacity, 106,000 acre-ft between elevations 895 ft, invert of outlet tunnel, and 1,215 ft, spillway crest. Storage is dissipated as soon after a flood as is possible, without creating damaging flows downstream, in order to have the maximum capacity available for any following flood which might develop.

COOPERATION.--Records of lake elevations and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed since dam was completed, 55,880 acre-ft Aug. 23, 1974, elevation, 1,150.0 ft; no pool at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 9,110 acre-ft Aug. 1, elevation, 1,037.10 ft; minimum observed, 39 acre-ft Sept. 23-27, elevation, 907.0 ft.

Capacity table (elevation, in feet, and total contents, acre-feet)
(Based on area maps by Corps of Engineers in 1939)

907	39	930	191	970	1,520	1,070	17,380
910	52	935	266	985	2,510	1,100	29,050
915	77	940	366	1,000	3,830	1,150	55,880
920	107	943	491	1,020	6,260		
925	141	955	817	1,040	9,680		

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1860	729	1224	1253	1023	1268	2009	1142	1381	1829	9110	43
2	1860	1489	1133	1059	1105	896	2063	1489	1892	1761	9072	42
3	2124	1930	1114	1100	1161	988	2145	1451	2353	1138	8957	43
4	2542	1786	1288	1258	1068	1050	1595	1402	1561	1917	8919	42
5	2083	817	1905	1258	1298	1248	426	1128	1822	1996	8938	45
6	1873	966	1522	1413	1091	1298	1483	1413	1755	1963	8731	57
7	1885	1063	1161	1413	988	937	1636	1204	4715	2002	7176	57
8	1905	1073	1495	1467	1073	1077	1943	1171	8400	2097	4917	52
9	1956	1147	1660	1440	1234	1214	2049	1339	4990	2159	3426	50
10	1956	1238	1185	1440	1243	1234	2063	1308	1989	2229	2353	50
11	1885	1713	1068	1544	1114	1091	2009	1350	2481	2215	2043	52
12	1556	1841	997	1500	1798	1180	1786	1298	2621	2208	2090	48
13	1119	1892	1068	1607	1209	1114	1737	1344	2855	2180	1666	48
14	1303	1786	848	1360	1293	1185	1761	1114	2700	2145	168	47
15	750	1719	1619	1648	1550	1114	1816	1105	2316	2145	158	48
16	921	1660	1719	1666	1413	1268	1905	2331	1835	2145	164	48
17	1068	1630	1666	1695	[illegible]	1339	1798	2173	1086	2166	575	52
18	1219	1660	896	1701	[illegible]	1350	1334	2367	1905	2173	817	48
19	983	1749	1185	1392	[illegible]	1032	1636	2781	2022	2194	1234	45
20	983	1835	1462	1142	1339	1308	1355	3252	1767	2215	168	45
21	1175	1175	1556	1371	1005	997	1413	3128	1339	2215	95	43
22	1463	975	1761	1175	1601	966	1567	2880	1376	2180	62	43
23	1027	958	1937	1027	1344	975	1467	3119	1601	2187	95	39
24	825	1671	1911	1054	1318	1440	1133	3828	1743	2159	1190	39
25	979	1707	1816	1128	1737	1313	1023	4679	1283	2166	1892	39
26	1648	1707	1761	1010	765	1100	1114	4762	1695	2152	2473	39
27	1613	1283	1268	962	971	1219	1424	3989	1917	2187	3172	39
28	1418	1096	817	1005	1096	1068	2117	2956	1567	2822	1185	288
29	1219	1283	1293	1096	---	1023	2009	1943	1755	4726	201	609
30	1298	1324	1624	1185	---	1161	1050	1749	1943	6864	215	794
31	1402	---	1511	1248	---	1898	---	1014	---	8900	43	---
MEAN	1481	1430	1402	1310	1215	1173	1629	2136	2289	2562	2045	97.8
MAX	2542	1930	1937	1701	1798	1898	2145	4762	8400	8900	9110	794
MIN	750	729	817	962	765	896	426	1014	1086	1138	43	39
††	958.3	965.8	966.8	961.6	963.4	977.2	960.1	963.6	974.6	1036.9	907.9	959.8
†	950	1298	1350	1096	1180	1956	1028	1190	1792	9072	43	1014
‡	-910	+348	+52	-254	+84	+776	-928	+162	+602	+7280	-9029	+971

CAL YR 1984......................‡ +1308
WTR YR 1985......................‡ -846

†† Monthend estimated elevation, in feet, at 2400.
† Monthend estimated contents, in acre-feet.
‡ Change in contents, in acre-feet.

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12098500 WHITE RIVER NEAR BUCKLEY, WA

LOCATION.--Lat 47°09'05", long 121°56'55", in SW¼NW¼ sec.8, T.19 N., R.7 E., King County, Hydrologic Unit 17110014, on right bank 0.4 mi upstream from Red Creek, 1.7 mi downstream from Mud Mountain Dam, 3.8 mi east of Buckley, 7.4 mi downstream from Clearwater River and at mile 27.9.

DRAINAGE AREA.--401 mi².

PERIOD OF RECORD.--October 1928 to November 1933, October 1938 to current year.

REVISED RECORDS.--WSP 1247: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Oct. 26 to Dec. 9, 1928, nonrecording gage, and Dec. 9 1928, to Nov. 30, 1933, water-stage recorder at site 3.0 mi upstream at different datum. Nov. 26, 1938, to Feb. 14, 1939, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Aug. 14-16. Records good. Flow regulated by Mud Mountain Lake (station 12098000) for flood control. Storage is not retained and observed annual runoff closely represents natural runoff of basin. No diversion upstream from station.

COOPERATION.--Water-stage recorder inspected by employees of Corps of Engineers.

AVERAGE DISCHARGE.--52 years (water years 1929-33, 1939-85), 1,446 ft³/s, 48.97 in/yr, 1,048,000 acre-ft/yr, adjusted for storage since December 1943.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s Feb. 26, 1932, gage height, 17.5 ft, site and datum then in use, from rating curve extended above 3,500 ft³/s; probably no flow for part of each day Oct. 1, 2, 7, 8, Nov. 14, Dec. 1, 5, 15, 1958; Jan. 3, Mar. 24, June 8, Aug. 19, 1959; minimum daily, 59 ft³/s June 25, 1957, Mar. 26, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1933 reached a stage of 23.4 ft, from floodmarks, at former site, discharge, 28,000 ft³/s, from rating curve extended above 3,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,020 ft³/s June 8, elevation, 804.57 ft; minimum, 103 ft³/s Dec. 4, due to regulation; minimum daily, 203 ft³/s July 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	373	507	932	754	577	1080	1670	1730	1860	1350	876	537
2	324	814	772	688	528	970	2010	1970	1800	1490	879	509
3	246	1560	690	632	495	880	2810	2220	2090	1290	872	494
4	494	1680	373	652	433	821	2510	2140	2160	1390	869	528
5	580	1300	647	637	504	767	1770	1820	2090	1470	868	648
6	415	1000	846	646	544	819	1660	1700	2150	1310	1140	946
7	430	943	551	643	489	710	1730	1620	4100	1240	1590	718
8	484	864	756	644	448	630	2060	1460	5900	1280	1400	626
9	583	815	1030	626	453	648	2550	1400	5440	1350	1180	565
10	739	773	898	569	495	688	2940	1380	3210	1360	1080	621
11	845	936	735	569	479	660	2910	1360	2690	1260	723	545
12	737	1070	752	538	789	659	2700	1240	2720	1200	757	496
13	691	1290	784	589	701	686	2610	1270	2740	1130	1150	487
14	714	1300	733	597	601	664	2650	1310	2710	1070	880	468
15	551	1110	847	672	862	679	2720	1060	2650	1070	880	506
16	433	957	848	719	877	711	2880	1360	2530	1070	850	496
17	399	841	910	854	760	832	2650	2130	2170	1080	710	809
18	440	796	697	1010	655	957	2170	2530	2150	1080	654	641
19	415	799	506	1040	622	906	1870	2730	2430	1090	884	545
20	342	1050	560	977	762	953	1660	2790	2530	1100	748	495
21	290	1020	633	1010	768	971	1420	2780	2270	1080	619	477
22	400	796	1300	976	1120	884	1350	2760	1910	1020	576	465
23	445	773	1780	896	1330	860	1410	2800	1750	1030	514	444
24	358	880	1520	828	1410	931	1340	2900	1710	1050	432	433
25	797	870	1230	809	1650	928	1200	2970	1470	952	521	438
26	1200	853	1150	761	1270	812	1180	2960	1380	917	480	437
27	882	854	1100	696	1050	770	1530	2880	1460	821	984	411
28	800	839	798	649	977	737	2480	2740	1490	329	1170	336
29	659	985	714	609	---	659	2290	2470	1360	203	617	320
30	554	960	853	564	---	800	1890	2370	1370	238	660	296
31	643	---	838	591	---	1400	---	2090	---	661	564	---
TOTAL	17263	29235	26783	22445	21649	25472	62620	64940	72290	32981	26127	15737
MEAN	557	975	864	724	773	822	2087	2095	2410	1064	843	525
MAX	1200	1680	1780	1040	1650	1400	2940	2970	5900	1490	1590	946
MIN	246	507	373	538	433	630	1180	1060	1360	203	432	296
AC-FT	34240	57990	53120	44520	42940	50520	124200	128800	143400	65420	51820	31210
MEAN†	542	981	865	720	775	834	2073	2098	2421	1182	696	541
CFSM†	1.35	2.45	2.16	1.80	1.93	2.08	5.17	5.23	6.04	2.95	1.74	1.35
IN.†	1.56	2.73	2.49	2.07	2.01	2.40	5.77	6.03	6.73	3.40	2.00	1.50
AC-FT†	33330	58340	53170	44270	43020	51300	123300	129000	144000	72700	42790	32180

CAL YR 1984 TOTAL 541531 MEAN 1480 MAX 12100 MIN 246 AC-FT 1074000 MEAN† 1481 CFSM† 3.69 IN.† 50.27 AC-FT† 1075000
WTR YR 1985 TOTAL 417542 MEAN 1144 MAX 5900 MIN 203 AC-FT 828200 MEAN† 1143 CFSM† 2.85 IN.† 38.69 AC-FT† 827400

† Adjusted for change in contents of Mud Mountain Lake.

12099000 WHITE RIVER CANAL AT BUCKLEY, WA

LOCATION.--Lat 47°10'21", long 122°03'48", in SW¼SE¼ sec.32, T.20 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on right bank 0.3 mi downstream from Dingle Basin, and 1.7 mi northwest of Buckley.

PERIOD OF RECORD.--February 1913 to September 1938 (monthly runoff only, published in WSP 1316), October 1981 to current year. Records for September 1958 to September 1981 available in files of the Geological Survey. Records prior to October 1961, published as White River flume near Buckley, at site 3.5 mi upstream; several stilling basins between the two sites affect runoff.

GAGE.--Water-stage recorder. Elevation of gage is 655 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent except those below 100 ft³/s, which are fair, and those below 5.0 ft³/s, which are poor. Flow completely regulated at White River Diversion Dam about 4.0 mi upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,730 ft³/s Apr. 15; gage height, 8.93 ft; no flow on all or part of May 1, Aug. 13-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	305	498	892	712	532	962	1500	498	1660	1200	775	381
2	277	637	730	646	483	912	1630	1620	1650	1300	774	381
3	170	1390	642	593	494	798	1660	1660	1640	1280	771	385
4	374	1560	334	595	456	769	1660	1670	1660	1210	763	451
5	533	1320	536	591	416	714	1550	1640	1650	1350	760	565
6	337	921	805	583	489	730	1530	888	1660	1200	915	859
7	351	860	490	585	444	672	1610	1550	1680	1130	1420	681
8	410	795	643	581	399	575	1670	1390	1690	1030	1340	568
9	505	742	930	572	391	583	1690	1300	1690	1210	1060	523
10	626	709	862	522	433	612	1710	1270	1520	1250	999	555
11	748	821	670	510	478	605	1710	1280	1270	1160	692	507
12	659	967	709	493	687	580	1710	1150	1280	1090	321	451
13	634	1160	722	513	692	630	1720	1140	1290	1030	0.64	447
14	635	1230	686	543	545	588	1720	1200	1280	965	0	433
15	521	1040	773	588	785	622	1720	1010	1240	959	0	463
16	370	890	796	651	819	624	1720	1040	1170	957	0	448
17	341	780	801	737	719	730	1710	1590	1000	960	0	660
18	364	707	695	887	607	831	1700	1600	910	969	0	582
19	368	326	492	945	576	836	1710	1610	1040	973	0	484
20	291	909	524	902	670	816	1600	1620	1130	987	0	437
21	235	981	566	909	728	871	1360	1620	1030	974	0	415
22	296	730	1070	897	939	789	1250	1620	806	920	0	411
23	401	714	1630	820	1240	782	1300	1620	718	910	0	385
24	311	801	1500	759	1290	831	1290	1640	688	939	0	369
25	521	803	1180	732	1490	846	1140	1650	598	865	0	375
26	1170	762	1050	701	1150	760	1090	1650	554	814	0	391
27	812	801	1040	643	964	683	1320	1650	667	767	0	380
28	730	763	785	597	886	673	1690	1650	1010	323	0	307
29	621	902	667	560	---	600	1690	1660	1190	142	0	292
30	503	864	802	519	---	684	1420	1660	1200	162	151	204
31	557	---	797	527	---	1190	---	1650	---	480	403	---
TOTAL	14976	26383	24819	20413	19802	22898	46780	44796	36571	29506	11144.64	13790
MEAN	483	879	801	658	707	739	1559	1445	1219	952	360	460
MAX	1170	1560	1630	945	1490	1190	1720	1670	1690	1350	1420	859
MIN	170	326	334	493	391	575	1090	498	554	142	0	204
AC-FT	29700	52330	49230	40490	39280	45420	92790	88850	72540	58530	22110	27350

CAL YR 1984 TOTAL 295581.50 MEAN 808 MAX 1750 MIN 0 AC-FT 586300
WTR YR 1985 TOTAL 311878.64 MEAN 854 MAX 1720 MIN 0 AC-FT 618600

12099600 BOISE CREEK AT BUCKLEY, WA

LOCATION.--Lat 47°10'34", long 122°01'02", in NE¼SE¼ sec.34, T.20 N., R.6 E., King County, Hydrologic Unit 17110014, on left bank at downstream side of county road bridge, 1.0 mi northeast of Buckley, and at mile 0.1.

DRAINAGE AREA.--15.4 mi².

PERIOD OF RECORD.--March 1977 to September 1981, December 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft, from topographic map. Prior to January 25, 1984, at site 25 ft upstream at datum 1.91 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow partly regulated by millpond at mile 5.6. Diversions upstream from station for domestic and industrial use. Interbasin diversion from Scatter Creek of about 2 ft³/s during low-flow periods enters Boise Creek upstream from millpond.

AVERAGE DISCHARGE.--7 years (1978-81, 1983-85), 32.8 ft³/s, 23,760 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 972 ft³/s Jan. 25, 1984, gage height, 5.18 ft from floodmarks; minimum, 1.7 ft³/s Sept. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 149 ft³/s June 7, gage height, 2.04 ft; minimum, 4.4 ft³/s Aug. 19, Sept. 4, 26; minimum gage height, 0.40 ft, Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	10	68	38	17	39	56	34	18	7.8	8.7	6.0
2	5.0	21	53	34	16	35	50	31	20	7.1	8.1	6.0
3	5.4	36	42	33	15	32	66	36	16	6.7	7.2	5.3
4	6.4	48	36	31	18	46	52	34	15	7.0	7.0	4.7
5	6.9	33	31	30	22	35	43	34	15	7.3	6.4	5.5
6	6.1	25	29	30	17	32	38	29	21	7.1	6.1	13
7	6.0	19	31	29	17	29	36	26	107	7.0	7.6	13
8	5.9	17	82	27	15	28	35	26	82	6.2	13	13
9	7.4	21	58	26	14	26	33	24	51	5.5	8.2	9.2
10	8.6	28	51	24	18	26	34	25	37	5.3	33	14
11	8.0	39	36	23	68	23	32	24	29	5.8	11	8.1
12	8.6	36	49	21	48	21	32	23	26	5.9	8.3	6.7
13	15	59	36	21	32	21	31	21	25	5.8	7.4	6.5
14	9.7	48	49	22	38	22	30	24	23	6.3	6.8	6.9
15	8.0	37	52	26	56	20	29	21	21	6.0	6.3	10
16	7.2	30	40	25	41	20	31	20	18	6.5	6.0	11
17	6.8	26	35	25	34	21	28	21	15	7.1	6.3	12
18	6.5	28	30	24	30	19	28	20	13	6.9	5.9	10
19	6.4	28	27	25	34	18	25	19	12	6.7	5.1	9.0
20	6.2	65	26	41	38	20	23	17	11	6.5	5.4	7.9
21	6.0	46	32	35	39	24	22	15	11	6.8	5.3	7.1
22	5.7	36	107	31	57	28	24	15	10	6.4	5.7	7.5
23	5.6	60	85	28	61	45	27	14	11	6.2	5.5	6.5
24	6.0	57	65	26	63	42	27	16	10	6.6	5.1	5.4
25	12	44	51	23	52	36	27	17	8.6	6.5	5.5	4.7
26	19	36	44	21	43	32	28	15	8.1	6.3	5.3	5.0
27	22	55	51	21	39	29	39	14	8.0	6.1	4.9	4.8
28	17	56	40	19	35	27	53	12	8.0	6.6	5.1	5.4
29	11	60	59	18	---	25	45	14	8.0	6.0	4.9	5.4
30	9.8	84	63	16	---	48	38	28	8.6	5.6	5.5	5.4
31	8.9	---	45	16	---	68	---	20	---	7.0	6.1	---
TOTAL	268.4	1188	1503	809	977	937	1062	689	666.3	200.6	232.7	235.0
MEAN	8.66	39.6	48.5	26.1	34.9	30.2	35.4	22.2	22.2	6.47	7.51	7.83
MAX	22	84	107	41	68	68	66	36	107	7.8	33	14
MIN	5.0	10	26	16	14	18	22	12	8.0	5.3	4.9	4.7
AC-FT	532	2360	2980	1600	1940	1860	2110	1370	1320	398	462	466

CAL YR 1984	TOTAL	16249.7	MEAN	44.4	MAX	620	MIN	5.0	AC-FT	32230
WTR YR 1985	TOTAL	8768.0	MEAN	24.0	MAX	107	MIN	4.7	AC-FT	17390

12100000 WHITE RIVER AT BUCKLEY, WA

LOCATION.--Lat 47°10'28", long 122°01'09", in NE¼SE¼ sec.34, T.20 N., R.6 E., Pierce County, Hydrologic Unit 17110014, on left bank 150 ft downstream from railway bridge, 200 ft downstream from Boise Creek, 1.0 mi northeast of Buckley, and at mile 23.3

DRAINAGE AREA.--427 mi².

PERIOD OF RECORD.--July 1910 to November 1911, April 1977 to current year. February 1913 to September 1938 (records not equivalent as they include flow of White River flume, see REMARKS).

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 620 ft, from topographic map. June 8, 1910, to Nov. 30, 1911, nonrecording gage at site 150 ft upstream at different datum, and Jan. 18, 1913, to Sept. 30, 1938, water-stage recorder at site 100 ft upstream at National Geodetic Vertical Datum of 1929 (levels by Puget Sound Power and Light Co.).

REMARKS.--No estimated daily discharges. Records good except those above 2,500 ft³/s, which are poor. Since November 1911, White River Canal (station 12099000) has diverted from left bank 1.0 mi upstream for storage in Lake Tapps (station 12101000). Water is returned to White River 19.7 mi downstream via the Lake Tapps Diversion (station 12101100) after power development at White River powerplant at Dieringer. Since 1948, flow regulated by Mud Mountain Lake (station 12098000) for flood control.

EXTREMES FOR PERIOD OF RECORD.--During water years 1911-12, 1914-19, 1921-23, 1935-38, maximum discharge, 23,100 ft³/s Dec. 18, 1917, during period of combined flows; minimum, not determined. River, excluding canal, since April 1977, maximum discharge, 14,300 ft³/s Dec. 2, 1977, gage height, 9.11 ft; minimum, 25 ft³/s Nov. 19, 1979, gage height, 2.41 ft; minimum daily, 31 ft³/s July 30, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,840 ft³/s June 8, gage height, 6.08 ft; minimum, 42 ft³/s Feb. 3, gage height, 2.45 ft; minimum daily, 65 ft³/s Sept. 9, 12, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	97	130	118	94	129	181	1170	221	144	96	176
2	101	107	118	114	93	127	429	351	176	114	97	164
3	100	138	109	110	91	124	1250	672	457	81	95	139
4	105	147	104	109	102	141	957	586	577	90	99	106
5	102	115	103	109	102	126	336	308	488	91	100	85
6	112	104	107	109	102	124	140	791	543	89	97	86
7	107	96	116	111	102	118	143	105	2620	90	97	77
8	105	94	158	107	102	118	437	98	4460	232	102	74
9	105	99	148	106	103	116	917	97	3760	101	97	65
10	104	104	129	100	105	119	1270	98	1860	95	124	75
11	120	113	122	98	172	114	1250	100	1490	92	95	69
12	104	109	140	96	151	109	1080	99	1490	95	539	65
13	111	121	121	96	118	109	984	100	1500	92	1270	66
14	105	116	142	97	128	111	1010	103	1490	92	908	65
15	103	109	137	103	155	109	1090	102	1470	96	905	73
16	101	104	121	99	132	110	1210	196	1440	94	877	71
17	99	100	116	107	122	110	1040	523	1320	94	788	146
18	102	127	116	99	118	108	571	944	1310	94	725	85
19	97	510	119	101	123	106	206	1140	1420	93	826	85
20	98	133	105	124	129	112	120	1210	1450	95	809	84
21	98	114	110	116	127	113	91	1220	1370	97	715	86
22	99	106	243	109	159	120	94	1180	1220	90	679	79
23	96	131	273	106	159	141	95	1220	1130	98	605	83
24	95	123	165	102	165	140	93	1310	1100	99	468	86
25	115	111	145	100	186	127	95	1370	984	89	576	87
26	108	107	138	98	256	119	97	1370	889	94	525	69
27	111	117	141	97	134	116	145	1280	825	98	975	66
28	108	119	127	96	124	113	942	1150	463	102	1350	67
29	103	126	155	95	---	111	725	894	142	96	645	66
30	102	155	155	93	---	153	696	791	144	95	477	160
31	99	---	131	94	---	202	---	515	---	97	184	---
TOTAL	3217	3852	4244	3219	3654	3795	17694	21093	37809	3119	15945	2705
MEAN	104	128	137	104	131	122	590	680	1260	101	514	90.2
MAX	120	510	273	124	256	202	1270	1370	4460	232	1350	176
MIN	95	94	103	93	91	106	91	97	142	81	95	65
AC-FT	6380	7640	8420	6380	7250	7530	35100	41840	74990	6190	31630	5370

CAL YR 1984 TOTAL 257902 MEAN 705 MAX 11800 MIN 89 AC-FT 511500
WTR YR 1985 TOTAL 120346 MEAN 330 MAX 4460 MIN 65 AC-FT 238700

12101000 LAKE TAPPS NEAR SUMNER, WA

LOCATION.--Lat 47°14'28", long 122°11'26", in NE¼NE¼ sec.8, T.20 N., R.5 E., Pierce County, Hydrologic Unit 17110014, 1.7 mi east of Dieringer, and 3.5 mi northeast of Sumner.

PERIOD OF RECORD.--November 1911 to current year. October 1934 to October 1950, change in contents published with records for Puyallup River at Puyallup. Monthend contents only November 1911 to September 1950, published in WSP 1316.

GAGE.--Nonrecording gage. Datum of gage is 0.7 ft above National Geodetic Vertical Datum of 1929 (levels by Puget Sound Power & Light Co.).

REMARKS.--Reservoir is formed by a diked natural lake into which a large part of the low-water flow of White River is diverted. Construction of dike began June 1910; storage began in 1911. Usable capacity (based on 1959 resurvey; capacity table dated July 28, 1959, put into use Oct. 1, 1958), 46,600 acre-ft between gage heights of 515 ft, normal minimum pool, and 543 ft, normal maximum pool. Dead storage unknown. Figures given herein represent usable contents. Reservoir is used for power development at the White River powerplant at Dieringer.

COOPERATION.--Gage-height record and contents curve furnished by Puget Sound Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 51,710 acre-ft June 30, 1958, gage height, 541.57 ft, capacity table dated Jan. 19, 1920; maximum gage height observed, 543.04 ft June 19, 1967; minimum contents observed, not determined (below normal minimum pool) Apr. 3, 1978, gage height, 514.90 ft; minimum gage height, 505.70 ft June 24, 1912.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 46,655 acre-ft June 1, 2, July 31, gage height, 543.00 ft; minimum observed, 19 acre-ft Mar. 10, 12, 13, gage height, 515.02 ft.

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	542.27	44,817	—
Oct. 31	542.34	44,993	+176
Nov. 30	542.52	45,446	+453
Dec. 31	542.40	45,144	-302
CAL YR 1984	—	—	+15,975
Jan. 31	526.45	13,004	-32,140
Feb. 28	523.73	9,210	-3,794
Mar. 31	517.85	2,740	-6,470
Apr. 30	535.38	28,892	+26,152
May 31	542.30	44,892	+16,000
June 30	542.24	44,741	-151
July 31	543.00	46,655	+1,914
Aug. 31	542.34	44,993	-1,662
Sept. 30	542.44	45,245	+252
WTR YR 1985	—	—	+428

12101100 LAKE TAPPS DIVERSION AT DIERINGER, WA

LOCATION.--Lat 47°14'18", long 122°13'37", in SW¼NW¼ sec.7, T.20 N., R.5 E., Pierce County, Hydrologic Unit 17110014, on right bank 850 ft downstream from White River powerplant at Dieringer, and 1,400 ft upstream from mouth.

PERIOD OF RECORD.--April 1958 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 60 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by White River powerplant.

AVERAGE DISCHARGE.--27 years, 964 ft³/s, 698,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft³/s Jan. 29, 1965, gage height, 6.23 ft; maximum gage height, 7.28 ft Jan. 25, 1984 (backwater from White River); minimum discharge, 7.2 ft³/s Sept. 29, 1967, gage height, 0.20 ft; minimum daily discharge, 10 ft³/s Aug. 21, 22, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,120 ft³/s May 11, June 8, gage height, 5.47 ft; minimum, 22 ft³/s on all or part of each day Aug. 14-18, gage height, 0.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	578	942	750	1150	1250	1180	1330	692	1160	737	318
2	254	635	764	688	1190	1250	1180	1590	1620	1310	755	334
3	192	1220	652	1150	1120	1250	1170	1580	1760	1320	745	338
4	280	1720	419	1270	1230	1260	1170	1480	1760	1180	716	414
5	475	1390	516	1120	696	1160	1170	33	1760	1320	719	558
6	322	991	830	862	840	1270	1170	538	1800	1180	870	879
7	294	914	582	1140	881	1270	1120	1570	1950	1090	1580	650
8	333	792	673	1120	665	1270	1010	1570	1950	1110	1360	573
9	449	755	981	1470	328	1170	953	1570	1470	1120	1070	530
10	557	820	982	1630	26	774	1110	1560	1650	1250	1040	532
11	660	846	704	1620	991	662	886	1820	1260	1160	583	470
12	599	1010	717	1440	1040	590	1150	2100	1310	1110	300	442
13	637	1300	706	1640	342	662	1150	1480	1240	977	23	421
14	636	1290	754	1640	673	452	1150	1210	1290	938	23	465
15	584	1090	827	1330	855	630	1090	601	1380	923	22	413
16	429	898	840	1270	317	267	250	219	1280	878	22	470
17	343	826	850	1260	27	562	1140	1130	1040	670	22	616
18	302	786	787	1080	301	881	1140	1120	852	870	23	577
19	304	198	554	1140	424	853	1140	1070	1010	935	23	451
20	271	798	438	969	318	818	1140	1060	1150	1040	23	421
21	194	1080	542	1180	813	862	1140	1190	1070	976	23	385
22	225	753	1120	1090	900	862	1140	1350	794	897	23	401
23	398	812	1640	1290	1250	862	1100	579	657	842	23	378
24	421	836	1630	1490	1250	711	1140	1060	658	888	23	354
25	464	850	1220	1640	1250	859	1280	91	553	792	23	353
26	1190	809	1080	1640	1250	810	1550	30	492	781	25	368
27	841	973	1210	1640	1250	865	1540	1530	595	623	25	364
28	720	787	907	1540	1250	816	1570	1460	1010	113	25	272
29	566	990	705	1240	---	560	1650	1430	1200	26	24	252
30	464	902	869	825	---	692	1670	1630	1180	26	131	143
31	468	---	820	549	---	843	---	1380	---	335	307	---
TOTAL	14094	27649	26261	38713	22627	27043	35249	36361	36433	27840	11308	13142
MEAN	455	922	847	1249	808	872	1175	1173	1214	898	365	438
MAX	1190	1720	1640	1640	1250	1270	1670	2100	1950	1320	1580	879
MIN	192	198	419	549	26	267	250	30	492	26	22	143
AC-FT	27960	54840	52090	76790	44880	53640	69920	72120	72260	55220	22430	26070

CAL YR 1984 TOTAL 292251 MEAN 799 MAX 1750 MIN 14 AC-FT 579700
WTR YR 1985 TOTAL 316720 MEAN 868 MAX 2100 MIN 22 AC-FT 628200

12101500 PUYALLUP RIVER AT PUYALLUP, WA
(National stream quality accounting network station)

LOCATION.--Lat 47°12'31", long 122°19'33", in SE¼NW¼ sec.20, T.20 N., R.4 E., Pierce County, Hydrologic Unit 17110014, on left bank 0.8 mi upstream from bridge at Clark Creek, 2.0 mi northwest of Puyallup City Hall, and at mile 6.6.

DRAINAGE AREA.--948 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1914 to current year.

REVISED RECORDS.--WSP 832: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1919, at sites 1.2 mi upstream and 900 ft upstream at different datums. Dec. 3, 1919, to Nov. 9, 1935, at site 500 ft upstream at datum 9.61 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. All diverted water returned to river upstream from gage. Large part of flow of White River (a tributary) diverted through Lake Tapps (station 12101000). Flood flow regulated by Mud Mountain Lake (station 12098000) on White River. Some pondage on tributaries and upper Puyallup River. Diurnal fluctuations caused by powerplants and glacial melt upstream from station.

Since 1912 the city of Tacoma pipeline diversion from Green River has released as much as 123 ft^3/s daily, and since 1957 an average of about 20 ft^3/s per month into Puyallup River 0.5 mi east of McMillin. Monthly mean discharge, in cubic feet per second, for the year is as follows:

October	2.08	January	4.07	April	18.06	July	2.08
November	3.41	February	3.88	May	9.58	August	4.96
December	11.79	March	4.05	June	2.35	September	12.66

AVERAGE DISCHARGE.--71 years, 3,361 ft^3/s, 2,435,000 acre-ft/yr, adjusted for storage in Lake Tapps since October 1934, and Mud Mountain Lake October 1944 to September 1947.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft^3/s Dec. 10, 1933, elevation, 31.0 ft, present datum; minimum, 306 ft^3/s Sept. 25, 1955, elevation, 8.23 ft; minimum daily, 400 ft^3/s Nov. 30, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,400 ft^3/s June 7, elevation, 18.77 ft; minimum, 568 ft^3/s Sept. 30, elevation, 8.56 ft; minimum daily, 687 ft^3/s Feb. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	806	1460	2960	2360	1990	2600	2960	4550	2810	2750	2200	1100
2	832	3130	2500	2120	2080	2570	3170	3750	3670	3040	2110	1110
3	835	4390	2180	2450	1770	2430	4330	4470	3840	3410	2110	1090
4	943	4770	1720	2660	2070	2560	4300	4180	4510	3280	2180	1250
5	1210	3570	1700	2520	1440	2370	3380	2120	4490	3510	2090	1710
6	968	2600	1950	2300	1560	2360	2800	2730	4430	3010	2090	2940
7	1000	2470	1730	2460	1650	2270	2780	3060	10700	2900	2950	2280
8	1240	2140	2450	2450	1390	2210	3110	2920	14300	3230	2940	1690
9	1670	2180	3060	2720	1030	2110	3700	2820	10100	3270	2170	1530
10	1800	2260	2850	2850	687	1670	4650	2800	7200	3470	2340	1620
11	1840	2860	2300	2790	1980	1470	4540	3130	5390	3110	1750	1520
12	1550	2990	2390	2570	2810	1370	4610	3280	5400	2900	1430	1310
13	1780	3460	2200	2780	1600	1400	4220	2680	5370	2640	2250	1220
14	1720	3700	2290	2850	1660	1180	4160	2510	5510	2480	2060	1270
15	1530	2980	2730	2770	2640	1340	4200	1890	5820	2530	1970	1260
16	1220	2500	2410	2590	1800	1030	3470	1500	5360	2510	1970	1250
17	1050	2200	2280	2700	1190	1210	4060	3590	4900	2160	1890	2360
18	943	2190	2040	2540	1360	1680	3500	4490	4770	2470	1870	2010
19	912	2180	1630	2560	1470	1660	2700	4580	5190	2590	1840	1580
20	863	2330	1460	2570	1500	1660	2500	4330	5410	2750	1820	1360
21	742	2700	1550	2760	1910	1760	2310	4270	4930	2610	1510	1230
22	733	2170	3240	2490	2220	1780	2270	4580	4250	2390	1440	1230
23	959	2350	4410	2620	2780	2030	2340	4150	3720	2420	1500	1140
24	991	2780	4070	2750	2990	2090	2370	4760	3410	2530	1360	1090
25	2200	2460	3280	2890	3060	2050	2470	4200	3070	2270	1570	1100
26	3800	2230	2880	2810	2860	1870	2820	3580	2840	2220	1560	1130
27	2410	2660	3060	2750	2660	1870	3630	4610	3010	2160	1660	1080
28	2040	2830	2590	2700	2510	1770	5750	4390	3240	1490	2380	946
29	1710	3160	2410	2230	---	1360	4860	4360	3020	1460	1430	847
30	1410	3100	3130	1670	---	1800	4190	5240	2860	1540	1510	766
31	1350	---	2770	1350	---	2750	---	4390	---	1740	1250	---
TOTAL	43057	82800	78220	78630	54667	58280	106150	113910	153520	80840	59200	42019
MEAN	1389	2760	2523	2536	1952	1880	3538	3675	5117	2608	1910	1401
MAX	3800	4770	4410	2890	3060	2750	5750	5240	14300	3510	2950	2940
MIN	733	1460	1460	1350	687	1030	2270	1500	2810	1460	1250	766
AC-FT	85400	164200	155100	156000	108400	115600	210500	225900	304500	160300	117400	83340
MEAN†	1392	2769	2517	2015	1884	1774	3979	3933	5115	2637	1881	1405
AC-FT†	85580	164700	154800	123900	104600	109100	236700	241900	304300	162200	115700	83590

CAL YR 1984 TOTAL 1285553 MEAN 3512 MAX 32200 MIN 733 AC-FT 2550000 MEAN† 3536 AC-FT† 2566000
WTR YR 1985 TOTAL 951293 MEAN 2606 MAX 14300 MIN 687 AC-FT 1887000 MEAN† 2606 AC-FT† 1887000

† Adjusted for change in contents of Lake Tapps.

12101500 PUYALLUP RIVER AT PUYALLUP, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water-quality data obtained at Clark Creek bridge 0.8 mi downstream from gage.

PERIOD OF RECORD.--Water years 1959-68, 1971-72, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1959 to September 1961, August 1965 to September 1966.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)
NOV 26...	1010	2230	81	7.70	5.0	4.3	12.6	98	E88	200	30	4
MAR 04...	1215	2600	79	7.50	6.0	3.6	13.0	104	150	39	28	4
MAY 13...	1300	2330	70	7.70	10.0	4.1	11.3	100	--	--	26	1
AUG 19...	1100	1550	65	7.30	13.5	210	9.7	--	1000	300	22	1

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 26...	8.4	2.2	4.2	23	0.3	1.1	26	8.9	2.4	<0.1	16
MAR 04...	7.8	2.0	2.9	18	0.2	0.9	24	8.0	2.4	<0.1	16
MAY 13...	7.4	1.7	3.8	24	0.3	0.8	25	7.4	1.8	<0.1	16
AUG 19...	6.1	1.7	3.4	24	0.3	0.9	21	9.3	1.6	0.1	11

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV 26...	52	59	0.07	313	9	0.37	0.07	0.4	0.04	0.02	0.02
MAR 04...	44	55	0.06	309	9	0.37	0.07	0.6	0.04	0.02	0.03
MAY 13...	52	54	0.07	327	7	0.15	0.07	0.3	0.03	0.02	0.02
AUG 19...	44	47	0.06	184	343	0.12	0.09	0.4	0.16	0.03	0.01

E - Estimated value based on values reported by Denver Central Laboratory.

12101500 PUYALLUP RIVER AT PUYALLUP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV											
26...	50	<1	11	<0.5	<1	6	<3	2	140	4	<4
MAR											
04...	10	<1	11	<0.5	<1	<1	<3	3	140	<1	<4
MAY											
13...	20	<1	9	<0.5	<1	<1	<3	2	110	5	<4
AUG											
19...	90	2	6	<0.5	<1	<1	<3	2	46	2	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV											
26...	14	<0.1	<10	3	<1	<1	47	<6	15	22	132
MAR											
04...	19	<0.1	<10	2	<1	<1	41	<6	39	14	98
MAY											
13...	14	<0.1	<10	<1	<1	<1	34	<6	6	8	50
AUG											
19...	31	<0.1	<10	3	<1	<1	29	<6	19	444	1860

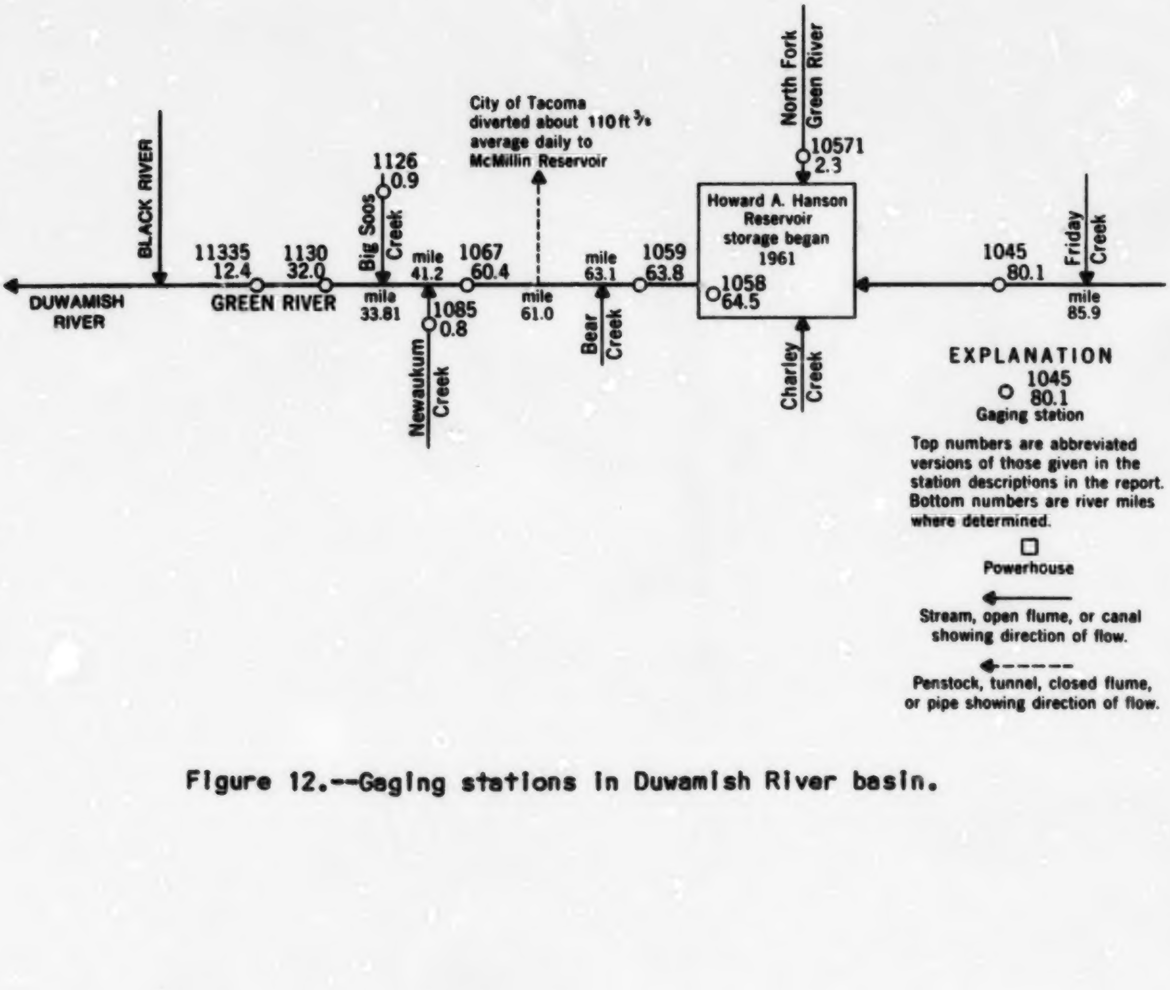
City of Tacoma
diverted about 110 ft³/s
average daily to
McMillin Reservoir
North Fork
Green River
10571
2.3
BLACK RIVER
1126
0.9
Big Soos
Creek
Howard A. Hanson
Reservoir
storage began
1961
Friday
Creek
11335
12.4
1130
32.0
mile
41.2
1067
60.4
mile
63.1
1059
63.8
1045
80.1
DUWAMISH
RIVER
GREEN RIVER
mile
33.81
1085
0.8
mile
61.0
1058
64.5
mile
85.9
Newaukum
Creek
Bear
Creek
Charley
Creek
EXPLANATION
1045
80.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 12.--Gaging stations in Duwamish River basin.

12104500 GREEN RIVER NEAR LESTER, WA

LOCATION.--Lat 47°12'28", long 121°33'07", in NE¼SE¼ sec.20, T.20 N., R.10 E., King County, Hydrologic Unit 17110013, on left bank 0.4 mi upstream from Champion Creek, 1.2 mi downstream from McCain Creek, 2.9 mi west of Lester, and at mile 80.1.

DRAINAGE AREA.--96.2 mi².

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1286: 1947(M). WSP 1316: 1948(M). WSP 1932: 1960, drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,480 ft, from river-profile map. Prior to Nov. 22, 1959, water-stage recorder at site 300 ft upstream at different datum (gage destroyed by flood of Nov. 22, 1959), Dec. 28, 1959, to Sept. 21, 1960, nonrecording gage at site 400 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records good except those above 1,000 ft³/s, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--40 years, 388 ft³/s, 54.77 in/yr, 281,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s Nov. 22, 1959, gage height, 12.41 ft, from floodmarks, present site and datum, on basis of slope-area measurement of peak flow; minimum, 22 ft³/s Nov. 20, 1952, Sept. 27, 1967, part or all of each day Oct. 18-20, 23-27, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 3	0700	*1,710	*4.22				

Minimum discharge, 33 ft³/s Oct. 4, 7, 8, gage height, 1.06 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	106	143	158	119	302	971	752	470	125	54	35
2	35	110	132	150	112	282	1150	967	445	119	54	39
3	34	207	123	141	99	259	1520	1030	417	115	52	36
4	35	319	113	133	99	241	1080	872	434	110	50	35
5	36	278	108	129	107	224	769	713	413	106	49	38
6	34	229	103	125	101	206	688	625	396	101	47	69
7	34	229	106	121	99	194	725	592	791	97	49	58
8	33	219	128	117	95	184	775	564	901	94	59	48
9	36	210	147	111	90	181	1060	525	693	90	55	48
10	36	207	143	106	90	187	1350	514	550	87	65	53
11	43	214	132	98	91	197	1170	479	460	84	56	51
12	50	236	136	96	95	209	1090	432	427	81	50	46
13	93	276	129	95	88	217	1110	421	400	79	48	44
14	92	328	150	98	85	229	1170	435	367	77	45	42
15	73	280	210	123	97	247	1180	460	343	74	43	42
16	62	237	190	117	97	292	1250	642	308	72	42	44
17	56	203	173	123	93	388	1040	938	281	71	41	76
18	52	188	150	147	91	424	870	1040	269	69	40	72
19	49	184	140	160	95	418	699	1050	257	67	39	59
20	46	197	135	192	105	407	571	941	242	64	40	52
21	44	190	144	213	118	388	473	826	223	63	40	49
22	43	177	326	213	242	346	420	851	206	62	39	46
23	43	171	645	202	306	319	410	884	192	60	38	45
24	44	163	498	186	533	288	383	894	181	59	36	43
25	165	150	370	172	530	255	363	828	168	58	36	42
26	233	140	304	159	403	237	362	713	159	56	35	40
27	189	135	262	150	334	220	658	622	153	55	35	39
28	177	138	223	142	304	202	1000	563	143	54	35	37
29	148	156	212	135	---	190	822	517	138	52	35	35
30	130	154	195	125	---	369	721	514	132	52	34	35
31	120	---	172	122	---	904	---	484	---	54	35	---
TOTAL	2300	6031	6142	4359	4718	9006	25850	21688	10559	2407	1376	1398
MEAN	74.2	201	198	141	169	291	862	700	352	77.6	44.4	46.6
MAX	233	328	645	213	533	904	1520	1050	901	125	65	76
MIN	33	106	103	95	85	181	362	421	132	52	34	35
CFSM	.77	2.09	2.06	1.47	1.76	3.02	8.96	7.28	3.66	.81	.46	.48
IN.	.89	2.33	2.38	1.69	1.82	3.48	10.00	8.39	4.08	.93	.53	.54
AC-FT	4560	11960	12180	8650	9360	17860	51270	43020	20940	4770	2730	2770

CAL YR 1984	TOTAL	136911	MEAN	374	MAX	8980	MIN	33	CFSM	3.89	IN.	52.94	AC-FT	271600
WTR YR 1985	TOTAL	95834	MEAN	263	MAX	1520	MIN	33	CFSM	2.73	IN.	37.06	AC-FT	190100

12105710 NORTH FORK GREEN RIVER NEAR LEMOLO, WA

LOCATION.--Lat 47°18'21", long 121°46'20", near line between SW¼ and SE¼ sec.15, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, on left bank 1.8 mi northeast of Lemolo siding, 5.5 mi east of Palmer, and at mile 2.3.

DRAINAGE AREA.--16.7 mi^2.

PERIOD OF RECORD.--June 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,250 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records good. An undetermined amount of water goes underground a short distance above the gage and, at times during dry summers, the streambed at the gage may become completely dry. Streamflow diverted by withdrawal from nearby wells, by the city of Tacoma Water Department, affects low flows.

AVERAGE DISCHARGE.--20 years, 86.0 ft^3/s, 69.93 in/yr, 62,310 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,010 ft^3/s Dec. 2, 1975, gage height, 8.29 ft; no flow Aug. 8, 9, 18, Sept. 5-13, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 28, 1965, reached a stage of 9.50 ft from floodmarks, discharge, 2,370 ft^3/s on basis of slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 7	2200	*412	*4.66				

Minimum discharge, 4.0 ft^3/s Oct. 4, gage height, 2.15 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	44	73	61	35	82	230	171	94	24	10	6.7
2	4.3	169	65	57	32	72	241	187	87	23	10	7.5
3	4.3	207	56	53	26	63	299	196	79	20	9.7	7.6
4	5.0	230	51	49	28	61	227	159	86	20	9.0	7.1
5	6.9	171	46	45	28	57	187	139	79	19	8.5	23
6	5.2	142	43	44	28	53	177	126	79	18	8.4	66
7	4.9	131	50	43	28	49	210	118	306	18	9.6	33
8	4.7	107	96	41	26	45	220	109	275	17	23	27
9	9.8	99	86	39	25	43	239	102	180	16	15	27
10	13	105	77	38	25	43	250	109	136	16	31	26
11	12	135	68	36	28	43	243	98	110	15	14	20
12	20	131	66	34	29	43	269	89	96	15	12	17
13	57	131	59	33	25	41	248	92	85	15	10	17
14	36	119	86	36	28	41	232	106	83	15	9.9	17
15	26	99	92	48	36	44	225	111	86	14	9.1	17
16	21	83	77	43	35	49	234	156	69	13	7.9	21
17	17	73	68	47	32	59	182	170	61	12	7.9	82
18	16	77	59	52	30	59	157	164	54	12	7.9	54
19	14	85	54	53	33	58	133	142	49	12	7.9	36
20	12	101	51	72	36	59	115	124	45	11	7.9	29
21	11	89	55	70	48	60	100	116	42	11	7.9	25
22	11	79	174	67	115	59	93	122	39	11	7.9	22
23	9.9	90	230	63	112	68	99	122	37	11	7.3	19
24	11	82	174	57	163	65	90	117	36	10	7.1	19
25	101	74	137	52	148	58	86	119	34	9.9	7.1	23
26	87	65	112	48	117	53	88	96	31	9.8	7.1	32
27	70	63	99	44	96	49	192	86	29	9.3	7.0	23
28	66	78	81	41	86	46	237	77	28	9.2	6.2	16
29	52	86	77	38	---	43	182	107	26	8.7	6.0	14
30	44	82	77	34	---	118	161	152	25	8.7	6.1	12
31	37	---	68	33	---	230	---	103	---	9.4	6.7	---
TOTAL	793.3	3227	2607	1471	1478	1913	5646	3885	2466	433.0	305.1	745.9
MEAN	25.6	108	84.1	47.5	52.8	61.7	188	125	82.2	14.0	9.84	24.9
MAX	101	230	230	72	163	230	299	196	306	24	31	82
MIN	4.3	44	43	33	25	41	86	77	25	8.7	6.0	6.7
CFSM	1.53	6.47	5.04	2.84	3.16	3.69	11.3	7.49	4.92	.84	.59	1.49
IN.	1.77	7.19	5.81	3.28	3.29	4.26	12.58	8.65	5.49	.96	.68	1.66
AC-FT	1570	6400	5170	2920	2930	3790	11200	7710	4890	859	605	1480

CAL YR 1984	TOTAL	32146.1	MEAN	87.8	MAX	985	MIN	4.3	CFSM	5.26	IN.	71.61	AC-FT	63760
WTR YR 1985	TOTAL	24970.3	MEAN	68.4	MAX	306	MIN	4.3	CFSM	4.10	IN.	55.62	AC-FT	49530

12105800 HOWARD A. HANSON RESERVOIR NEAR PALMER, WA

LOCATION.--Lat 47°16'38", long 121°47'03", in NE¼SE¼ sec.28, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, near left bank on outlet gate structure, just upstream from Howard A. Hanson Dam on Green River, 1.4 mi upstream from Bear Creek, 5.1 mi southeast of Palmer, and at mile 64.5.

DRAINAGE AREA.--220 mi^2, approximately.

PERIOD OF RECORD.--December 1961 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929, supplementary adjustment of 1947.

REMARKS.--Reservoir is formed by earth-fill dam; completed Mar. 31, 1962; storage began Dec. 5, 1961. Capacity, 105,650 acre-ft between elevations 1,035 ft, invert of outlet tunnel, and 1,206 ft, top of spillway gates. Storage is not retained but is dissipated as soon after a flood as possible without creating damaging flows downstream in order to have the maximum capacity available for any following flood which might develop.

COOPERATION.--Daily elevations at 0830, monthend elevations at 2400, and capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 61,325 acre-ft Dec. 5, 1975, elevation, 1,175.8 ft; minimum observed, 34 acre-ft Nov. 2, 1962, elevation, 1,037.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 25,649 acre-ft June 18-20, June 26-29, July 5-8, elevation, 1,141.0 ft; minimum observed, 568 acre-ft Nov. 24, elevation, 1,056.5 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)
(Based on photogrammetric maps by Fairchild Aerial Surveys in 1961)

1,045	153	1,080	2,800	1,140	24,887
1,050	289	1,090	4,554	1,150	33,301
1,055	493	1,100	6,893	1,160	43,092
1,060	770	1,110	9,715	1,170	54,326
1,065	1,132	1,120	13,386	1,180	66,591
1,070	1,588	1,130	18,362		

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 0900

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15858	8373	1303	796	789	696	4898	1568	1191	25420	23092	16728
2	15411	7545	1149	573	828	809	3643	1432	1339	25420	22884	16470
3	15214	7359	889	842	770	739	2931	1442	1251	25573	22679	16263
4	14975	8287	1036	946	745	764	1036	1157	2431	25573	22544	16009
5	14831	7951	1051	953	910	727	727	1199	3880	25649	22343	15757
6	14642	6893	998	917	809	673	1321	975	5143	25649	22141	15808
7	14410	5742	903	849	720	815	1303	889	6944	25649	22008	15858
8	14181	4451	990	770	745	822	1330	910	12198	25649	21877	15757
9	14001	4451	1509	667	783	1286	4128	815	18478	25573	21747	15858
10	13821	3573	1588	745	815	1021	4682	1059	18478	25573	21681	15658
11	13690	3052	1932	745	876	1191	2659	1216	20527	25497	21681	15608
12	13604	2772	1432	822	1075	1339	1842	1277	22141	25497	21550	15461
13	13690	2550	975	889	968	1470	1451	776	23580	25497	21355	15313
14	14001	1681	1075	932	809	1598	1367	1059	24887	25497	21163	15166
15	14091	975	1519	1075	968	1745	1358	1100	25268	25420	20970	15022
16	14136	661	1712	1242	1028	1932	1432	1166	25420	25344	20778	14831
17	13956	708	809	1367	990	1745	910	1460	25268	25268	20527	14831
18	13690	605	661	1312	903	1932	696	1166	25649	25192	20339	15118
19	13302	855	883	1182	809	1558	745	1385	25649	25116	20029	15214
20	12923	1083	939	1225	903	1766	1260	1132	25649	24963	19784	15166
21	12555	961	975	1451	1013	1978	1460	862	25573	24887	19539	15118
22	12198	632	1339	1174	1470	1642	1124	998	25573	24740	19300	15022
23	11812	758	2687	842	1470	1702	1124	1216	25573	24519	19061	14879
24	11440	568	2772	803	1529	1865	998	1394	25497	24371	18826	14735
25	11152	876	1809	809	1745	1854	946	1199	25497	24224	18594	14596
26	11403	975	708	789	1051	1489	883	1132	25649	24079	18250	14457
27	11224	961	673	739	714	1132	1100	1413	25649	23936	18025	14271
28	10974	946	679	809	696	745	3130	1174	25649	23722	17746	14091
29	10629	1286	998	842	---	903	4855	983	25649	23580	17474	13911
30	10097	1321	1216	803	---	1174	3052	1233	25573	23368	17204	13690
31	9255	---	1028	720	---	3661	---	946	---	23230	16940	---
††	1106.5	1067.2	1065.0	1059.6	1058.9	1090.4	1073.1	1064.4	1140.9	1137.5	1127.2	1120.4
†	8660	1321	1132	745	702	4639	1920	1083	25573	23092	16834	13560
‡	-7349	-7339	-189	-387	-43	+3937	-2719	-837	+24490	-2481	-6258	-3274

CAL YR 1984......................‡ -162
WTR YR 1985......................‡ -2449

†† Monthend estimated elevation, in feet, at 2400 hours.
† Monthend estimated contents, in acre-feet.
‡ Change in contents, in acre-feet.
NOTE.--Daily contents, in acre-feet, usually at 0900 hours.

DUWAMISH RIVER BASIN

12105900 GREEN RIVER BELOW HOWARD A. HANSON RESERVOIR, WA

LOCATION.--Lat 47°17'02", long 121°47'48", in NE¼NW¼ sec.28, T.21 N., R.8 E., King County, Hydrologic Unit 17110013, on right bank 0.7 mi upstream from Bear Creek, 0.7 mi downstream from Howard A. Hanson Dam, 5.0 mi southeast of Palmer, and at mile 63.8.

DRAINAGE AREA.--221 mi^2.

PERIOD OF RECORD.--October 1960 (monthly discharge only), November 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 990 ft, from topographic map.

REMARKS.--Estimated daily discharges: June 7-9. Records excellent except for estimated daily discharges, which are fair. Flow regulated by Howard A. Hanson Reservoir (station 12105800) for flood control and during summer months to augment the natural river flow. Minor diversions on upstream tributaries for domestic use.

AVERAGE DISCHARGE.--25 years, 1,021 ft^3/s, 62.74 in/yr, 739,700 acre-ft/yr, adjusted for storage in Howard A. Hanson Reservoir since December 1961.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft^3/s Feb. 21, 1961, gage height, 14.40 ft; minimum, 87 ft^3/s Dec. 29, 1961, gage height, 3.49 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,070 ft^3/s Apr. 3, gage height, 10.80 ft; minimum, 208 ft^3/s June 4, gage height, 4.14 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	334	860	783	771	403	919	2890	2090	993	357	259	258
2	291	843	756	566	405	887	3540	2150	1010	288	258	258
3	251	842	590	521	380	822	4250	2360	603	279	258	258
4	251	1210	504	533	322	765	3190	2020	257	287	258	262
5	249	1610	505	533	373	746	2160	1750	248	287	258	268
6	248	1560	497	527	404	612	1910	1540	275	287	258	268
7	248	1270	486	517	365	603	1930	1380	450	287	258	268
8	247	1200	508	503	333	468	1450	1320	380	287	258	268
9	246	1240	552	442	320	495	1780	1180	325	287	258	268
10	246	1180	573	419	324	667	3840	1100	296	265	258	265
11	246	1140	742	393	331	519	3380	1150	300	251	258	261
12	247	1110	856	362	398	533	2980	1120	276	251	258	260
13	246	1380	624	368	422	546	2840	1060	258	252	258	260
14	246	1470	588	372	389	596	2800	1050	504	252	258	260
15	246	1190	751	385	423	566	2780	1120	761	252	262	260
16	283	833	1030	397	454	673	2980	1490	753	252	265	260
17	353	730	898	484	448	877	2490	2150	567	252	265	260
18	370	645	588	599	439	979	1920	2290	559	251	265	260
19	368	633	533	627	432	908	1580	2210	606	256	264	260
20	367	781	540	634	442	925	1240	1960	581	260	264	261
21	365	894	545	806	486	929	1130	1610	530	260	263	260
22	364	741	1070	902	860	968	1100	1610	481	260	263	260
23	362	741	2070	757	1170	892	1130	1700	482	260	263	259
24	359	689	2240	652	1510	833	1100	1760	439	260	263	258
25	504	577	1980	604	1900	894	1050	1740	382	260	263	258
26	799	590	1320	573	1500	892	1020	1460	374	260	262	258
27	786	589	1040	511	1130	828	1120	1250	403	260	261	258
28	782	595	823	473	989	617	1420	1220	414	260	260	257
29	777	719	745	476	---	488	2390	1150	402	260	260	256
30	843	825	853	468	---	675	2620	1340	402	260	260	256
31	881	---	853	419	---	1550	---	1130	---	260	259	---
TOTAL	12405	28687	26443	16594	17352	23532	66210	48460	14311	8300	8075	7823
MEAN	400	956	853	535	620	759	2207	1563	477	268	260	261
MAX	881	1610	2240	902	1900	1550	4250	2360	1010	357	265	268
MIN	246	577	486	362	320	468	1020	1050	248	251	258	256
AC-FT	24610	56900	52450	32910	34420	46680	131300	96120	28390	16460	16020	15520
MEAN†	281	833	850	529	619	823	2162	1549	889	227	159	206
CFSM†	1.27	3.77	3.85	2.39	2.80	3.72	9.78	7.01	4.02	1.03	0.72	0.93
IN.†	1.46	4.20	4.43	2.76	2.92	4.29	10.91	8.08	4.48	1.19	0.83	1.04
AC-FT†	17260	49560	52260	32520	34380	50620	128600	95280	52880	13980	9760	12250

CAL YR 1984 TOTAL 374930 MEAN 1024 MAX 9340 MIN 230 AC-FT 743700 MEAN† 1024 CFSM† 4.63 IN.† 63.05 AC-FT† 743500
WTR YR 1985 TOTAL 278192 MEAN 762 MAX 4250 MIN 246 AC-FT 551800 MEAN† 759 CFSM† 3.43 IN.† 46.59 AC-FT† 549400

† Adjusted for change in contents in Howard A. Hanson Reservoir.

12106700 GREEN RIVER AT PURIFICATION PLANT, NEAR PALMER, WA

LOCATION.--Lat 47°18'19", long 121°50'58", in NE¼SE¼ sec.13, T.21 N., R.7 E., King County, Hydrologic Unit 17110013, on left bank at city of Tacoma purification plant, 0.6 mi downstream from diversion dam, 2 mi southeast of Palmer, and at mile 60.4.

DRAINAGE AREA.--231 mi².

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 859.53 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Since Dec. 5, 1961, flow regulated by Howard A. Hanson Reservoir (station 12105800), 4.1 mi upstream for flood control and during summer months to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 110 ft³/s upstream from station for municipal supply. Minor diversions on upstream tributaries for domestic use.

AVERAGE DISCHARGE.--22 years, 989 ft³/s, 716,500 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s Feb. 12, 1981, gage height, 12.05 ft; minimum, 20 ft³/s part or all of each day Oct. 26, 27, Nov. 3, 6, 1974, gage height, 3.90 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, had a discharge of 27,800 ft³/s, on basis of slope-area measurement at site 0.6 mi downstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,770 ft³/s Apr. 3, gage height, 10.18 ft; minimum, 135 ft³/s June 4, 5, gage height, 5.40 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212	768	755	734	301	888	3250	2170	923	269	158	153
2	181	769	714	517	301	822	4090	2190	941	201	153	153
3	144	832	544	432	285	775	4880	2480	590	188	153	153
4	144	1260	416	441	236	705	3640	2120	181	198	153	154
5	144	1650	421	441	262	687	2320	1760	158	198	153	168
6	144	1560	410	441	301	535	1990	1540	191	198	153	179
7	144	1250	396	436	271	513	1980	1350	395	198	157	178
8	141	1160	464	418	239	386	1530	1270	344	198	162	175
9	141	1210	524	355	224	366	1830	1140	269	198	157	170
10	141	1150	529	320	224	612	4290	1050	250	174	168	167
11	141	1140	662	300	239	425	4040	1090	241	157	154	163
12	147	1110	808	264	307	432	3290	1080	217	157	153	161
13	170	1370	585	264	335	443	3100	1010	205	157	153	157
14	162	1490	562	267	313	457	3050	994	427	157	155	158
15	153	1190	763	279	387	465	3010	1070	713	157	157	164
16	175	808	1010	294	405	567	3260	1420	698	157	159	168
17	229	667	880	379	385	851	2700	2180	520	157	163	182
18	248	584	531	507	367	915	1990	2410	486	157	159	176
19	248	563	438	557	358	857	1570	2310	545	158	157	174
20	248	724	444	574	376	743	1200	2010	517	160	153	174
21	248	864	458	741	441	842	1060	1610	467	160	153	170
22	247	717	1160	856	922	898	1050	1550	394	160	153	166
23	246	710	2330	709	1240	855	1080	1650	394	160	153	163
24	243	704	2480	592	1620	789	1060	1720	359	160	153	161
25	400	526	2090	537	2060	827	1010	1720	299	160	153	160
26	731	530	1370	502	1580	832	980	1440	282	160	153	160
27	691	524	1030	436	1140	780	1130	1180	303	160	153	158
28	709	541	793	378	971	576	1540	1160	315	160	153	157
29	688	668	681	378	---	395	2540	1100	306	160	153	157
30	748	815	813	378	---	697	2810	1290	306	160	155	157
31	782	---	829	332	---	1710	---	1110	---	160	156	---
TOTAL	9190	27854	25890	14059	16090	21645	71270	48174	12236	5354	4818	4936
MEAN	296	928	835	454	575	698	2376	1554	408	173	155	165
MAX	782	1650	2480	856	2060	1710	4880	2480	941	269	168	182
MIN	141	524	396	264	224	366	980	994	158	157	153	153
AC-FT	18230	55250	51350	27890	31910	42930	141400	95550	24270	10620	9560	9790

CAL YR 1984 TOTAL 361160 MEAN 987 MAX 9400 MIN 125 AC-FT 716400
WTR YR 1985 TOTAL 261516 MEAN 716 MAX 4880 MIN 141 AC-FT 518700

BEST COPY AVAILABLE

12108500 NEWAUKUM CREEK NEAR BLACK DIAMOND, WA

LOCATION.--Lat 47°16'33", long 122°03'30", in NW¼SW¼ sec.28, T.21 N., R.6 E., King County, Hydrologic Unit 17110013, on right bank 0.1 mi downstream from West Whitney Hill bridge, 0.8 mi upstream from mouth, and 3.5 mi southwest of Black Diamond.

DRAINAGE AREA.--27.4 mi².

PERIOD OF RECORD.--July 1944 to November 1950, water years 1951-52 (annual maximum), September 1952 to current year.

REVISED RECORDS.--WSP 1396: 1946(M), 1949(P). WSP 1932: Drainage area. WDR WA-74-1: 1973(M). WDR WA-76-1: 1975.

GAGE.--Water-stage recorder. Elevation of gage is 310 ft, from topographic map. November 1950 to September 1952 stilling well with nonrecording gage only.

REMARKS.--Estimated daily discharges: May 4-6, June 2-11. Records good except for estimated daily discharges, June 2-11, which are fair. Many small diversions upstream from station for irrigation and domestic use. No regulation.

AVERAGE DISCHARGE.--39 years (water years 1945-50, 1953-85), 61.1 ft³/s, 30.28 in/yr, 44,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,820 ft³/s probably Feb. 17, 1949, gage height, 3.54 ft from recorded range in stage, from rating curve extended above 600 ft³/s; minimum, 8.0 ft³/s Oct. 13, 14, 1952; minimum gage height, 0.62 ft Aug. 26, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 11	1930	*297	*2.29				

Minimum discharge, 12 ft³/s Sept. 28, 29, gage height, 0.80 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	19	87	74	35	53	68	41	26	20	18	14
2	17	32	62	65	35	51	56	38	28	20	17	14
3	18	40	50	60	33	46	70	44	27	20	16	14
4	18	54	42	56	31	94	58	44	30	19	16	14
5	18	31	37	54	31	68	51	43	27	19	15	14
6	18	26	35	52	31	56	47	41	31	19	15	17
7	18	24	36	50	36	50	44	36	90	19	16	18
8	18	22	106	47	36	46	42	37	70	18	21	20
9	19	28	89	44	35	43	40	36	44	18	17	17
10	20	32	83	42	44	42	39	36	37	18	34	20
11	20	48	64	40	174	40	38	36	34	18	19	16
12	21	39	92	38	140	38	37	33	31	18	17	15
13	25	58	71	37	73	37	36	33	32	17	17	15
14	21	50	87	39	74	36	35	36	32	17	16	15
15	19	33	103	43	101	36	35	32	31	17	16	16
16	18	29	75	41	70	35	39	31	28	17	15	16
17	18	27	63	39	57	34	35	29	27	17	15	17
18	18	29	56	37	51	34	36	28	25	17	15	15
19	18	30	48	38	59	33	35	28	24	16	15	15
20	18	68	44	69	74	33	33	27	24	16	15	14
21	18	50	48	56	63	36	32	27	23	16	15	14
22	17	36	175	48	70	43	34	27	22	16	15	14
23	17	60	106	44	72	85	37	26	22	16	14	14
24	18	66	79	41	72	81	37	27	23	16	14	14
25	20	44	69	38	62	77	40	27	22	16	14	14
26	22	36	62	36	54	59	40	26	22	16	14	14
27	28	70	87	36	49	54	58	26	22	15	14	13
28	22	76	73	36	47	47	86	26	21	15	14	12
29	19	71	116	35	---	43	56	26	21	15	14	13
30	19	107	138	33	---	82	45	30	21	15	14	13
31	18	---	95	32	---	97	---	27	---	16	14	---
TOTAL	595	1335	2378	1400	1709	1609	1339	1004	917	532	501	451
MEAN	19.2	44.5	76.7	45.2	61.0	51.9	44.6	32.4	30.6	17.2	16.2	15.0
MAX	28	107	175	74	174	97	86	44	90	20	34	20
MIN	17	19	35	32	31	33	32	26	21	15	14	12
CFSM	.70	1.62	2.80	1.65	2.23	1.89	1.63	1.18	1.12	.63	.59	.55
IN.	.81	1.81	3.23	1.90	2.32	2.18	1.82	1.36	1.24	.72	.68	.61
AC-FT	1180	2650	4720	2780	3390	3190	2660	1990	1820	1060	994	895

CAL YR 1984 TOTAL 24396 MEAN 66.7 MAX 706 MIN 17 CFSM 2.43 IN. 33.12 AC-FT 48390
WTR YR 1985 TOTAL 13770 MEAN 37.7 MAX 175 MIN 12 CFSM 1.38 IN. 18.70 AC-FT 27310

12112600 BIG SOOS CREEK ABOVE HATCHERY, NEAR AUBURN, WA

LOCATION.--Lat 47°18'45", long 122°09'51", on west line NW¼ sec.15, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, on left bank 0.2 mi upstream from fish hatchery, 2.7 mi east of Auburn, and at mile 0.9.

DRAINAGE AREA.--66.7 mi², excludes 3.67 mi² in vicinity of Youngs Lake (flow from which has been diverted to Cedar River since about 1935).

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 77.2 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. City of Seattle diverts probably less than 2 ft³/s from Youngs Lake into Little Soos Creek, a tributary, during low flows. Prior to October 1966, fish hatchery 0.5 mi upstream from station diverted up to 15 ft³/s which was returned downstream from the station.

AVERAGE DISCHARGE.--19 years (water years 1967-85), 127 ft³/s, 25.86 in/yr, 92,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,990 ft³/s Feb. 28, 1972, gage height, 6.17 ft; minimum, 11 ft³/s Sept. 5, 1963, gage height, 1.07 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 440 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 30	1700	*286	*3.38				

Minimum discharge, 20 ft³/s Aug. 28, 29; minimum gage height, 1.73 ft Oct. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	45	156	211	84	106	123	71	48	34	27	22
2	28	109	133	183	85	103	112	69	49	32	26	22
3	29	121	118	165	82	100	124	73	48	31	25	22
4	30	124	108	153	79	137	121	71	49	30	24	22
5	30	97	101	145	77	133	112	68	47	30	24	22
6	29	73	96	140	79	122	104	66	51	30	23	24
7	30	62	101	134	88	112	98	65	111	30	26	26
8	30	58	201	127	90	104	97	64	103	29	30	28
9	34	59	219	120	88	100	92	62	78	28	26	32
10	43	68	200	116	113	98	89	62	64	28	34	31
11	46	105	169	111	207	93	88	62	58	27	27	29
12	43	98	187	107	233	91	90	57	54	26	26	26
13	47	101	172	104	185	89	86	57	53	26	25	26
14	41	94	176	106	159	87	83	62	56	26	24	27
15	37	78	194	109	159	85	80	59	57	27	23	28
16	35	69	179	104	143	83	80	56	53	26	22	29
17	34	64	165	100	131	80	76	53	50	26	21	36
18	33	66	151	98	123	79	79	52	47	26	21	37
19	33	66	137	98	124	77	78	51	46	26	22	33
20	32	80	131	132	129	78	73	51	44	24	23	31
21	32	74	129	123	121	80	70	49	42	24	22	31
22	32	67	175	111	119	86	71	48	40	24	22	31
23	32	85	171	103	115	113	80	48	39	24	22	30
24	34	103	155	99	115	132	75	47	38	25	21	30
25	35	91	145	95	115	127	82	47	38	23	21	29
26	35	83	139	90	109	115	82	46	37	22	21	29
27	36	118	165	87	105	114	91	46	36	22	21	28
28	36	178	168	86	103	109	98	46	36	22	21	28
29	34	175	186	85	---	98	86	51	34	22	21	27
30	34	184	268	83	---	118	78	57	34	23	21	28
31	36	---	256	81	---	139	---	52	---	25	22	---
TOTAL	1069	2795	5051	3606	3360	3188	2698	1768	1540	818	734	844
MEAN	34.5	93.2	163	116	120	103	89.9	57.0	51.3	26.4	23.7	28.1
MAX	47	184	268	211	233	139	124	73	111	34	34	37
MIN	28	45	96	81	77	77	70	46	34	22	21	22
CFSM	.52	1.40	2.44	1.74	1.80	1.54	1.35	.85	.77	.40	.36	.42
IN.	.60	1.56	2.82	2.01	1.87	1.78	1.50	.99	.86	.46	.41	.47
AC-FT	2120	5540	10020	7150	6660	6320	5350	3510	3050	1620	1460	1670

CAL YR 1984	TOTAL	50044	MEAN	137	MAX	665	MIN	28	CFSM	2.05	IN.	27.91	AC-FT	99260
WTR YR 1985	TOTAL	27471	MEAN	75.3	MAX	268	MIN	21	CFSM	1.13	IN.	15.32	AC-FT	54490

12113000 GREEN RIVER NEAR AUBURN, WA

LOCATION.--Lat 47°18'45", long 122°12'10", in NW¼NW¼ sec.17, T.21 N., R.5 E., King County, Hydrologic Unit 17110013, on left bank 1.2 mi east of Auburn, 1.8 mi downstream from Big Soos Creek, and at mile 32.0.

DRAINAGE AREA.--399 mi², excludes 3.67 mi² in the vicinity of Youngs Lake, flow from which has been diverted to Cedar River basin since about 1935.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1936 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1936, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: July 8 to Aug. 7. Water-discharge records good except for estimated daily discharges, which are fair. Since Dec. 5, 1961, flow regulated by Howard A. Hanson Reservoir (station 12105800), 32.5 mi upstream from station, for flood control and during summer months, to augment the natural river flow. City of Tacoma diverted an average daily discharge of about 110 ft³/s from river at headworks near Palmer, 29 mi upstream from station, for municipal use. Minor diversions on upstream tributaries for domestic use.

AVERAGE DISCHARGE.--49 years, 1,351 ft³/s, 978,800 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft³/s Nov. 23, 1959, elevation, 69.75 ft; minimum, 81 ft³/s Sept. 23, 1952; minimum elevation, 53.09 ft Aug. 29, 30, Sept. 28-30, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,200 ft³/s Apr. 3, elevation, 58.91 ft; minimum discharge, 256 ft³/s Aug. 29-30, Sept. 28-30, elevation, 53.09 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	396	959	1250	1330	617	1290	2820	2430	1140	497	286	265
2	393	1070	1140	1180	616	1210	3950	2210	1150	419	275	265
3	329	1120	1010	966	603	1180	4330	2500	1090	364	272	262
4	311	1360	802	950	537	1180	4320	2410	501	363	272	261
5	307	1860	774	933	500	1160	2760	2010	405	362	272	272
6	300	1770	748	909	572	996	2350	1830	419	362	272	302
7	299	1600	742	884	580	925	2170	1640	727	361	295	305
8	297	1310	1010	856	546	872	2210	1530	875	357	336	316
9	307	1440	1120	809	514	676	1280	1480	637	353	305	312
10	328	1410	1080	725	544	959	3650	1280	558	340	381	312
11	323	1460	1060	710	816	775	4090	1330	521	305	321	290
12	318	1420	1340	644	927	772	3300	1330	501	295	296	280
13	351	1520	1190	631	839	774	3090	1280	474	291	287	279
14	342	1790	995	637	783	787	3010	1240	506	290	283	282
15	316	1580	1350	652	870	794	2970	1250	943	290	276	283
16	304	1200	1350	652	869	791	3100	1430	958	290	279	287
17	355	957	1500	669	815	1150	2970	2050	899	285	277	309
18	410	900	1100	790	774	1100	2350	2430	676	285	277	310
19	410	823	901	875	764	1270	1910	2390	814	285	276	293
20	406	968	882	977	804	1040	1620	2210	760	290	278	286
21	402	1150	884	1030	812	1080	1340	1860	746	290	278	283
22	398	1070	1340	1210	1100	1190	1350	1690	659	290	274	278
23	397	972	2500	1110	1540	1280	1340	1760	647	290	271	275
24	408	1210	2810	959	1730	1220	1340	1830	644	290	269	272
25	426	865	2520	893	2350	1210	1290	1840	563	290	266	268
26	873	838	1990	838	2040	1230	1240	1740	500	290	265	267
27	886	926	1600	809	1590	1170	1320	1370	491	290	266	263
28	884	1000	1400	709	1360	1120	1750	1360	521	290	265	259
29	865	1060	1270	707	---	772	2160	1330	500	290	262	256
30	870	1360	1490	692	---	873	2920	1410	500	290	267	257
31	953	---	1520	668	---	1680	---	1450	---	290	270	---
TOTAL	14164	36968	40668	26404	26412	32526	74300	53900	20331	9874	8769	8449
MEAN	457	1232	1312	852	943	1049	2477	1739	678	319	283	282
MAX	953	1860	2810	1330	2350	1680	4330	2500	1150	497	381	316
MIN	297	823	742	631	500	676	1240	1240	405	285	262	256
AC-FT	28090	73330	80660	52370	52390	64520	147400	106900	40330	19590	17390	16760

CAL YR 1984	TOTAL	527967	MEAN	1443	MAX	10500	MIN	297	AC-FT	1047000
WTR YR 1985	TOTAL	352765	MEAN	966	MAX	4330	MIN	256	AC-FT	699700

12113000 GREEN RIVER NEAR AUBURN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1952 to current year.

INSTRUMENTATION.--Temperature recorder since March 1952.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C July 28, 1958; minimum, 0.0°C on Jan. 29, 30, 1980, Feb. 4, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.0°C Aug.17; minimum, 0.0°C Feb. 4.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.5	12.5	13.5	8.0	8.0	8.0				---	---	---
2	14.0	12.0	13.0	8.0	7.5	7.5				---	---	---
3	13.5	12.0	13.0	8.0	7.5	8.0				---	---	---
4	14.0	13.0	13.5	8.0	7.5	8.0				---	---	---
5	13.5	12.0	12.5	7.5	7.0	7.0				---	---	---
6	13.0	12.5	12.5	7.0	7.0	7.0				---	---	---
7	14.5	12.5	13.0	7.5	7.0	7.0				---	---	---
8	14.0	13.0	13.5	7.5	7.0	7.0				---	---	---
9	14.0	13.0	13.5	7.0	7.0	7.0				---	---	---
10	13.5	13.0	13.0	7.0	7.0	7.0				---	---	---
11	13.0	12.5	12.5	7.5	7.0	7.5				---	---	---
12	12.0	11.0	11.5	7.5	7.5	7.5				---	---	---
13	11.0	11.0	11.0	7.5	7.5	7.5				---	---	---
14	11.0	10.5	10.5	7.5	7.0	7.0				---	---	---
15	10.5	10.0	10.0	7.0	6.5	6.5				---	---	---
16	10.0	9.5	9.5	6.5	6.0	6.0				---	---	---
17	9.5	8.5	9.0	6.0	6.0	6.0				---	---	---
18	9.5	8.5	9.0	6.5	6.0	6.0				---	---	---
19	9.5	8.0	8.5	7.0	6.5	6.5				---	---	---
20	9.0	8.0	8.5	7.0	7.0	7.0				---	---	---
21	9.0	8.0	8.0	7.0	6.5	7.0				---	---	---
22	8.5	8.0	8.0	6.5	6.0	6.0				---	---	---
23	8.0	8.0	8.0	6.0	6.0	6.0				---	---	---
24	9.5	8.0	8.5	6.0	6.0	6.0				---	---	---
25	10.5	9.5	10.0	6.0	6.0	6.0				3.5	3.0	3.0
26	10.5	9.5	10.0	6.0	6.0	6.0				3.0	2.5	2.5
27	9.5	9.5	9.5	6.0	5.5	6.0				3.5	2.5	3.0
28	9.5	9.0	9.0	---	---	---				4.0	3.5	3.5
29	9.0	8.5	8.5	---	---	---				4.0	3.5	4.0
30	8.5	8.5	8.5	---	---	---				3.5	2.5	3.0
31	8.5	8.0	8.0	---	---	---				3.5	2.5	3.0
MONTH	14.5	8.0	10.5	---	---	---				---	---	---

12113000 GREEN RIVER NEAR AUBURN, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.0	2.5	6.0	5.0	5.5	8.0	5.5	6.5	10.5	7.5	9.0
2	3.0	1.5	2.0	6.0	4.0	5.0	8.0	6.0	7.0	10.5	9.0	9.5
3	2.0	.5	1.5	5.5	4.0	5.0	7.0	5.5	6.5	10.0	7.5	9.0
4	1.5	.0	.5	6.5	5.0	5.5	6.0	5.5	5.5	8.5	7.0	8.0
5	3.0	1.5	2.5	6.5	5.0	5.5	7.5	6.0	6.5	9.5	7.0	8.0
6	3.5	2.5	3.0	7.0	4.5	5.5	8.0	6.0	7.0	10.0	8.0	9.0
7	3.5	3.0	3.0	7.0	4.5	5.5	8.0	6.5	7.5	10.5	8.0	9.5
8	4.0	3.0	3.5	7.0	4.0	5.5	8.5	6.5	7.5	10.0	8.0	9.0
9	4.0	2.5	3.5	7.5	4.5	6.0	11.5	7.5	9.0	11.0	7.5	9.0
10	4.5	3.5	4.0	7.0	5.0	6.0	8.0	6.5	7.5	10.0	8.0	9.5
11	4.5	3.5	4.0	7.0	4.5	6.0	7.0	6.5	7.0	9.5	7.0	8.0
12	5.0	3.5	4.0	7.5	5.5	6.5	9.0	6.5	7.5	11.0	6.5	8.5
13	4.0	3.0	3.5	7.5	4.5	6.0	8.5	8.0	8.0	10.0	8.0	9.0
14	4.5	3.0	3.5	7.0	5.5	6.0	8.5	7.5	8.0	10.0	8.0	9.0
15	5.5	4.5	5.0	8.0	5.5	6.5	8.5	8.0	8.0	13.0	7.5	10.0
16	5.5	4.0	4.5	8.5	5.5	7.0	8.5	7.0	8.0	15.0	9.5	12.0
17	5.0	3.5	4.5	7.0	6.0	7.0	7.5	7.0	7.0	13.5	10.5	12.0
18	5.0	3.5	4.0	7.0	6.5	6.5	8.0	7.0	7.5	12.5	10.5	11.5
19	5.0	4.0	4.5	7.5	6.0	6.5	8.0	6.0	7.0	12.0	10.0	11.0
20	6.0	5.0	5.5	8.0	6.0	7.0	8.0	6.0	6.5	10.5	9.0	10.0
21	6.0	5.5	5.5	7.0	5.5	6.0	8.5	5.5	7.0	12.5	9.0	10.5
22	6.5	6.0	6.0	6.5	5.5	6.0	8.0	6.5	7.0	14.0	11.0	12.5
23	6.0	5.5	5.5	6.0	5.0	5.5	9.0	6.5	7.5	14.0	11.5	12.5
24	6.0	5.0	5.5	6.0	4.5	5.0	8.0	6.5	7.0	13.5	11.0	12.0
25	5.0	4.0	4.5	6.0	4.0	5.0	8.5	5.5	7.0	12.5	10.5	11.5
26	5.5	4.0	5.0	5.5	4.0	5.0	8.5	7.0	7.5	12.5	10.0	11.0
27	5.5	4.0	4.5	6.5	4.5	5.5	8.0	7.0	7.5	11.5	10.5	11.0
28	5.5	4.5	5.0	7.0	4.5	6.0	9.0	7.5	8.0	12.5	10.0	11.0
29	---	---	---	7.0	5.5	6.0	9.5	6.5	8.0	10.5	9.5	10.0
30	---	---	---	7.0	6.0	6.5	10.0	6.5	8.0	11.5	9.0	10.0
31	---	---	---	7.5	6.0	6.5	---	---	---	12.0	9.5	10.5
MONTH	6.5	.0	4.0	8.5	4.0	6.0	11.5	5.5	7.5	15.0	6.5	10.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.5	10.5	11.0				---	---	---	17.0	14.5	16.0
2	11.5	10.0	10.5				---	---	---	18.0	14.5	16.0
3	12.5	9.5	11.0				---	---	---	16.5	14.5	15.5
4	15.5	11.5	13.5				---	---	---	15.5	14.0	14.5
5	---	---	---				---	---	---	15.5	14.5	15.0
6	---	---	---				---	---	---	15.0	13.5	14.5
7	---	---	---				19.0	16.0	17.0	16.0	13.0	14.5
8	---	---	---				17.5	14.5	16.0	15.0	13.5	14.5
9	---	---	---				16.5	15.0	16.0	15.5	13.5	14.5
10	---	---	---				17.5	14.5	16.0	15.5	14.0	15.0
11	---	---	---				19.5	14.0	16.5	16.5	13.5	15.0
12	---	---	---				19.5	15.5	17.5	16.0	14.0	15.0
13	---	---	---				20.5	16.0	18.0	16.5	14.0	15.0
14	---	---	---				20.5	16.0	18.5	15.5	14.0	14.5
15	---	---	---				20.0	16.0	18.0	15.5	13.5	14.5
16	---	---	---				20.5	16.0	18.5	14.5	13.0	13.5
17	---	---	---				21.0	16.5	18.5	14.0	12.5	13.0
18	---	---	---				19.5	16.0	17.5	14.5	12.0	13.0
19	---	---	---				18.0	16.0	17.0	15.0	12.5	14.0
20	---	---	---				16.5	14.5	15.5	14.0	12.0	13.5
21	---	---	---				17.5	13.5	15.5	14.5	13.0	14.0
22	---	---	---				18.5	13.5	16.0	14.5	11.5	13.0
23	---	---	---				19.5	15.0	17.0	14.0	11.0	12.5
24	---	---	---				20.0	16.5	18.0	14.5	11.5	13.0
25	---	---	---				20.5	16.5	18.5	15.0	12.0	13.5
26	---	---	---				19.0	15.5	17.5	15.0	12.0	13.5
27	---	---	---				18.0	15.0	16.5	14.5	11.5	13.0
28	---	---	---				18.5	15.5	16.5	14.0	11.0	12.5
29	---	---	---				18.0	14.0	16.0	13.0	10.0	11.5
30	---	---	---				17.0	15.5	16.0	12.5	9.5	11.0
31	---	---	---				18.0	14.5	16.0	---	---	---
MONTH	---	---	---				---	---	---	18.0	9.5	14.0

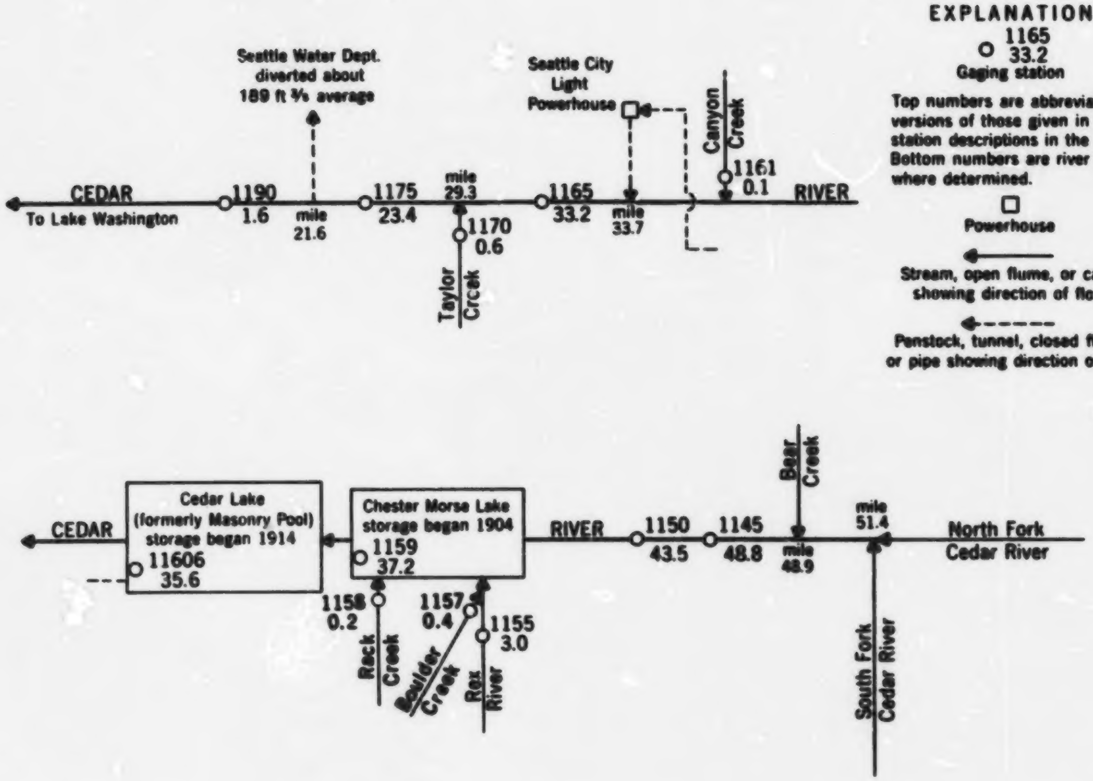
EXPLANATION
1165
33.2
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Seattle Water Dept. diverted about 189 ft³/s average
Seattle City Light Powerhouse
CEDAR
To Lake Washington
1190
1.6
mile 21.6
1175
23.4
mile 29.3
1170
0.6
Taylor Creek
1165
33.2
mile 33.7
Canyon Creek
1161
0.1
RIVER
CEDAR
Cedar Lake (formerly Masonry Pool) storage began 1914
11606
35.6
Chester Morse Lake storage began 1904
1159
37.2
RIVER
1150
43.5
1145
48.8
Bear Creek
mile 48.9
mile 51.4
North Fork Cedar River
1158
0.2
Rack Creek
1157
0.4
Boulder Creek
1155
3.0
Rex River
South Fork Cedar River

Figure 13.--Gaging stations in Lake Washington basin (Cedar River).

12114500 CEDAR RIVER BELOW BEAR CREEK, NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°20'32", long 121°32'52", in SE¼SE¼ sec.32, T.22 N., R.10 E., King County, Hydrologic Unit 17110012, on right bank 500 ft downstream from Bear Creek, and 12.2 mi southeast of town of Cedar Falls.

DRAINAGE AREA.--25.4 mi².

PERIOD OF RECORD.--October 1945 to December 1963, October 1975 to current year.

REVISED RECORDS.--WSP 1716: 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,880 ft, from topographic map. Prior to Sept. 16, 1960, at site 90 ft upstream at datum 2.35 ft higher.

REMARKS.--Estimated daily discharges: Feb. 3-10. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--28 years (water years 1946-63, 1976-85), 170 ft³/s, 90.89 in/yr, 123,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,620 ft³/s Nov. 22, 1959, gage height, 6.98 ft site and datum then in use, from rating curve extended above 890 ft³/s on basis of slope-area measurement of peak flow; minimum, 12 ft³/s Nov. 27, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*), from rating curve extended above 910 ft³/s on basis of slope-area measurement at gage height 9.37 ft:

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	2000	*882	*4.39	No other peak greater than base discharge.			

Minimum discharge, 19 ft³/s Aug. 29 to Sept. 4;, minimum gage height, 1.68 ft Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	84	78	70	50	99	334	336	363	112	33	20
2	20	102	71	66	47	91	395	432	329	119	32	20
3	20	206	66	62	41	84	512	465	315	115	31	19
4	23	310	62	58	40	80	391	387	358	110	29	19
5	23	244	59	55	45	74	328	330	317	98	29	30
6	21	223	57	53	43	70	308	293	302	89	28	68
7	20	236	63	52	41	66	323	273	744	84	30	34
8	20	207	96	49	39	63	351	258	654	80	37	28
9	23	197	86	48	37	63	439	242	450	77	30	30
10	25	201	82	44	37	63	542	241	357	71	37	32
11	30	230	78	42	40	62	522	226	327	66	29	28
12	45	243	80	42	42	63	572	211	349	62	28	26
13	94	261	72	41	37	63	553	204	321	58	26	26
14	73	253	127	47	39	66	563	218	321	54	25	26
15	57	215	138	55	45	69	572	232	331	52	25	25
16	49	181	117	46	40	86	619	361	271	50	24	30
17	45	153	107	48	38	105	481	536	264	48	23	74
18	42	152	96	50	38	110	382	593	294	46	23	53
19	40	161	88	52	39	109	313	540	294	44	23	43
20	37	165	87	63	39	116	264	454	264	42	23	39
21	35	149	86	66	47	114	228	413	229	41	23	36
22	34	133	146	67	81	105	206	470	212	40	23	33
23	33	127	240	66	87	101	202	539	183	39	22	32
24	35	115	195	64	161	92	186	545	157	37	21	30
25	239	102	158	62	154	82	172	559	140	36	21	29
26	207	92	136	60	129	76	169	449	142	35	21	28
27	160	87	118	58	113	71	320	390	141	33	20	27
28	147	95	104	56	104	66	412	352	132	32	20	25
29	120	95	97	54	---	63	344	343	127	32	20	25
30	109	86	86	52	---	157	311	414	117	32	20	25
31	95	---	75	50	---	291	---	364	---	32	20	---
TOTAL	1942	5105	3151	1698	1693	2820	11314	11670	8805	1866	796	960
MEAN	62.6	170	102	54.8	50.5	91.0	377	376	294	60.2	25.7	32.0
MAX	239	310	240	70	161	291	619	593	744	119	37	74
MIN	20	84	57	41	37	62	169	204	117	32	20	19
CFSM	2.46	6.69	4.02	2.16	2.38	3.58	14.8	14.8	11.6	2.37	1.01	1.26
IN.	2.84	7.48	4.61	2.49	2.48	4.13	16.57	17.09	12.90	2.73	1.17	1.41
AC-FT	3850	10130	6250	3370	3360	5590	22440	23150	17460	3700	1580	1900

CAL YR 1984 TOTAL 61259 MEAN 167 MAX 1610 MIN 20 CFSM 6.57 IN. 89.72 AC-FT 121500
WTR YR 1985 TOTAL 51820 MEAN 142 MAX 744 MIN 19 CFSM 5.59 IN. 75.89 AC-FT 102800

12115000 CEDAR RIVER NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°22'13", long 121°37'26", in SE¼SW¼ sec.23, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 1.4 mi upstream from Chester Morse Lake, 8.3 mi southeast of town of Cedar Falls, and at mile 43.5.

DRAINAGE AREA.--40.7 mi².

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1286: 1946-48, 1950(P), 1951. WSP 1516: 1946(M), 1947-48(P), 1950-51(M), 1953-54(P), 1955(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,560 ft, from topographic map. Prior to Oct. 26, 1957, at site 80 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 17-19, Aug. 30 to Sept. 5. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--40 years, 265 ft³/s, 88.42 in/yr, 192,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,490 ft³/s Nov. 22, 1959, gage height, 11.34 ft, from high-water mark in well, from rating curve extended above 4,300 ft³/s, on basis of slope-area measurements at gage heights 10.16 ft and 11.34 ft; maximum gage height, 11.4 ft Feb. 11, 1951, backwater from Chester Morse Lake; minimum discharge, 20 ft³/s Nov. 30 to Dec. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	2100	*1,220	*6.00	No other peak greater than base discharge.			

Minimum discharge, 29 ft³/s Oct. 3, 4, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	135	147	120	86	176	524	486	464	152	53	31
2	30	191	133	112	83	161	586	609	421	154	51	31
3	30	394	121	105	71	150	726	656	391	153	49	30
4	31	584	112	99	71	144	557	554	453	146	47	30
5	36	428	105	96	81	134	460	470	413	135	45	37
6	32	363	98	92	76	126	419	416	383	123	44	100
7	31	382	110	89	73	119	444	385	968	115	47	63
8	30	331	180	85	72	113	483	358	912	111	61	51
9	36	306	171	82	68	112	582	334	610	106	51	53
10	39	304	163	78	68	112	716	334	483	101	60	53
11	44	365	148	73	76	111	690	316	429	95	49	48
12	59	371	148	68	81	112	768	291	449	89	45	45
13	158	379	133	70	70	111	739	282	425	85	43	44
14	128	372	224	81	71	115	744	304	415	81	42	43
15	101	311	246	93	88	119	740	315	456	77	41	44
16	84	261	210	83	78	137	796	470	374	74	39	46
17	75	222	180	89	74	165	666	680	350	71	38	114
18	69	216	158	97	72	174	558	747	387	68	38	94
19	64	234	145	102	78	173	467	699	391	64	38	75
20	60	249	141	132	84	182	392	598	355	62	37	65
21	57	230	148	138	94	182	335	534	307	60	37	60
22	55	207	251	138	164	174	302	590	280	59	37	57
23	53	205	386	132	172	180	305	662	246	58	36	54
24	54	188	315	128	279	166	277	672	216	57	35	51
25	276	169	257	123	283	148	260	674	192	55	34	48
26	304	153	223	115	236	136	252	567	189	54	34	47
27	240	148	197	109	204	128	485	494	189	52	33	45
28	227	163	171	104	185	118	684	448	177	50	33	43
29	188	171	163	98	---	113	543	432	171	49	32	42
30	170	161	149	93	---	239	474	524	160	49	32	41
31	150	---	130	89	---	474	---	466	---	51	32	---
TOTAL	2942	8193	5463	3113	3138	4804	15974	15367	11656	2656	1293	1585
MEAN	94.9	273	176	100	112	155	532	496	389	85.7	41.7	52.8
MAX	304	584	386	138	283	474	796	747	968	154	61	114
MIN	30	135	98	68	68	111	252	282	160	49	32	30
CFSM	2.33	6.71	4.32	2.46	2.75	3.81	13.1	12.2	9.56	2.11	1.02	1.30
IN.	2.69	7.49	4.99	2.85	2.87	4.39	14.60	14.05	10.65	2.43	1.18	1.45
AC-FT	5840	16250	10840	6170	6220	9530	31680	30480	23120	5270	2560	3140

CAL YR 1984	TOTAL	95051	MEAN	260	MAX	2400	MIN	29	CFSM	6.39	IN.	86.88	AC-FT	186500
WTR YR 1985	TOTAL	76184	MEAN	209	MAX	968	MIN	30	CFSM	5.14	IN.	69.63	AC-FT	151100

12115500 REX RIVER NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°21'03", long 121°39'43", in NE¼NW¼ sec.33, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 3.0 mi upstream from mouth and Chester Morse Lake, and 7.5 mi southeast of town of Cedar Falls.

DRAINAGE AREA.--13.4 mi^2.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1286: 1946, 1948(P), 1949(M), 1950(P), 1952(M). WSP 1446: 1946(M), 1951, 1953-55(M). WSP 1932: Drainage area. WDR WA-74-1: 1973.

GAGE.--Water-stage recorder. Elevation of gage is 1,600 ft, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 1-11, May 3-21. Records good except for estimated daily discharges, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--40 years, 103 ft^3/s, 104.38 in/yr, 74,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,200 ft^3/s Nov. 22, 1959, gage height, 8.20 ft, from rating curve extended above 1,600 ft^3/s on basis of contracted-opening measurement at gage height 7.19 ft and slope-area measurement at gage height 8.20 ft; maximum gage height, Nov. 19, 1962, backwater from debris; minimum discharge, 4.3 ft^3/s Nov. 29, 1952, gage height, 2.43 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 7	2000	*668	*5.36				

Minimum discharge, 6.1 ft^3/s Aug. 28-30, Sept. 4, gage height, 3.23 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	71	61	43	27	64	323	226	180	26	9.7	7.0
2	9.3	252	53	41	24	56	313	277	154	24	9.8	8.7
3	8.9	386	48	39	22	51	372	283	149	23	9.2	6.8
4	14	399	43	37	20	47	227	190	170	22	8.6	6.3
5	14	246	40	35	19	43	180	150	151	21	8.5	36
6	10	206	37	33	17	40	173	135	158	20	8.1	112
7	9.9	202	53	32	16	37	224	125	527	19	12	42
8	13	155	134	30	15	35	246	115	381	18	29	33
9	21	136	106	29	13	34	281	110	243	17	13	35
10	25	143	86	28	12	33	298	122	179	16	28	34
11	26	216	69	27	20	33	308	112	150	16	14	27
12	59	199	63	26	22	32	373	108	136	15	12	23
13	120	196	54	25	14	32	324	112	119	14	9.9	22
14	87	162	119	33	19	33	293	150	127	14	9.4	20
15	61	125	114	53	44	35	302	165	133	14	8.9	21
16	49	100	89	41	31	42	324	270	100	13	8.5	47
17	41	83	73	49	28	52	232	330	90	13	8.1	162
18	37	110	60	56	27	55	185	300	83	13	7.9	75
19	32	147	56	56	28	54	146	240	75	12	7.9	52
20	28	152	53	78	29	59	119	215	65	11	7.8	42
21	26	121	54	75	44	58	99	200	57	11	7.8	36
22	24	98	198	66	101	53	88	273	52	11	7.7	31
23	23	104	238	59	94	55	97	289	46	10	7.3	27
24	26	89	151	52	184	52	84	276	44	10	7.0	24
25	256	74	107	47	138	45	78	266	39	9.9	6.7	22
26	162	64	84	43	101	41	84	208	36	9.6	6.5	21
27	121	61	70	39	78	39	346	188	34	9.3	6.5	20
28	111	83	59	36	67	35	360	160	32	8.9	6.5	18
29	82	83	54	34	---	33	232	220	30	8.7	6.2	17
30	70	70	53	30	---	203	194	275	28	8.8	6.8	16
31	59	---	47	29	---	342	---	208	---	9.5	8.0	---
TOTAL	1634.5	4533	2526	1301	1254	1823	6905	6298	3768	447.7	307.3	1043.8
MEAN	52.7	151	81.5	42.0	44.8	58.8	230	203	126	14.4	9.91	34.8
MAX	256	399	238	78	184	342	373	330	527	26	29	162
MIN	8.9	61	37	25	12	32	78	108	28	8.7	6.2	6.3
CFSM	3.93	11.3	6.08	3.13	3.34	4.39	17.2	15.1	9.40	1.07	.74	2.60
IN.	4.54	12.58	7.01	3.61	3.48	5.06	19.17	17.48	10.46	1.24	.85	2.90
AC-FT	3240	8990	5010	2580	2490	3620	13700	12490	7470	888	610	2070

CAL YR 1984 TOTAL 38136.5 MEAN 104 MAX 1580 MIN 7.1 CFSM 7.76 IN. 105.87 AC-FT 75640

WTR YR 1985 TOTAL 31841.3 MEAN 87.2 MAX 527 MIN 6.2 CFSM 6.51 IN. 88.40 AC-FT 63160

12115700 BOULDER CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°21'59", long 121°41'30", in NW¼NW¼ sec.29, T.22 N., R.9 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 5.8 mi southeast of Cedar Falls, and at mile 0.4.

DRAINAGE AREA.--4.64 mi^2.

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,610 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 19-21, Feb. 1-10. Records good except those for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 637 ft^3/s Jan. 24, 1984, gage height, 4.25 ft; minimum, no flow for many days during August, September, and October 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 190 ft^3/s June 7, gage height, 3.17 ft; minimum, no flow for many days during October.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	12	15	12	6.3	18	97	60	34	5.5	1.5	.55
2	.00	60	14	11	6.1	16	100	75	29	4.9	1.6	.73
3	.00	102	12	9.9	5.9	14	121	79	27	4.4	1.4	.50
4	.00	118	11	9.3	5.7	13	73	54	32	4.0	1.2	.42
5	.00	68	9.8	8.9	5.5	12	58	44	28	3.9	1.1	4.1
6	.00	50	9.2	8.3	5.3	11	55	39	29	3.8	1.1	16
7	.00	48	14	7.7	5.0	10	67	36	133	3.6	1.7	9.1
8	.00	38	38	7.2	4.8	9.5	77	33	93	3.2	5.4	8.6
9	.00	32	31	6.8	4.7	9.4	91	31	53	3.1	2.2	8.9
10	.75	33	25	6.4	4.5	9.3	100	35	38	2.9	4.9	7.0
11	.08	49	19	5.9	6.5	9.3	110	32	31	2.8	2.3	5.2
12	5.4	45	17	5.6	7.5	9.3	116	28	27	2.7	1.6	4.4
13	20	45	15	5.6	5.6	9.1	100	29	24	2.6	1.4	3.9
14	13	39	31	7.2	6.6	9.4	90	38	26	2.5	1.2	3.4
15	7.7	30	31	10	10	10	89	42	28	2.4	1.0	3.6
16	5.4	24	24	8.6	7.7	12	102	68	22	2.3	.92	6.3
17	3.8	20	19	11	6.9	14	71	80	19	2.2	.86	24
18	3.1	24	17	13	6.5	15	54	73	17	2.0	.81	14
19	2.4	33	14	13	7.0	15	42	59	15	1.8	.84	10
20	1.7	40	12	20	7.6	16	34	48	13	1.7	.85	8.0
21	1.4	32	11	19	12	16	29	44	12	1.6	.81	6.7
22	1.1	26	52	16	38	15	26	49	11	1.6	.73	5.8
23	1.0	28	72	14	34	14	27	50	10	1.6	.58	5.0
24	1.2	24	49	12	54	13	24	48	9.7	1.6	.50	4.4
25	35	20	33	11	42	11	22	45	8.7	1.6	.45	3.9
26	26	17	26	10	30	11	24	36	7.8	1.4	.43	3.5
27	20	17	21	9.4	23	9.7	100	31	7.3	1.4	.42	3.2
28	19	21	17	8.7	19	9.0	102	28	6.7	1.3	.39	3.1
29	13	20	16	7.8	---	8.4	66	42	6.3	1.2	.37	2.9
30	11	18	15	6.9	---	49	54	53	5.9	1.2	.52	2.7
31	8.6	---	13	6.5	---	90	---	39	---	1.5	.63	---
TOTAL	200.63	1133	703.0	308.7	377.7	487.4	2121	1448	803.4	78.3	39.71	179.90
MEAN	6.47	37.8	22.7	9.96	13.5	15.7	70.7	46.7	26.8	2.53	1.28	6.00
MAX	35	118	72	20	54	90	121	80	133	5.5	5.4	24
MIN	.00	12	9.2	5.6	4.5	8.4	22	28	5.9	1.2	.37	.42
CFSM	2.44	14.3	8.57	3.76	5.09	5.92	26.7	17.6	10.1	.95	.48	2.26
IN.	2.82	15.90	9.87	4.33	5.30	6.84	29.77	20.33	11.28	1.10	.56	2.53
AC-FT	398	2250	1390	612	749	967	4210	2870	1590	155	79	357

CAL YR 1984 TOTAL 8799.70 MEAN 24.0 MAX 365 MIN .00 CFSM 9.06 IN. 123.53 AC-FT 17450
WTR YR 1985 TOTAL 7880.74 MEAN 21.6 MAX 133 MIN .00 CFSM 8.15 IN. 110.63 AC-FT 15630

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12115800 RACK CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°23'29", long 121°43'17", in NW¼SE¼ sec.13, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 3.7 mi southeast of Cedar Falls, and at mile 0.2.

DRAINAGE AREA.--2.14 mi².

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,590 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 192 ft³/s Jan. 24, 1984, gage height, 2.85 ft; minimum, no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 59 ft³/s June 7, gage height, 1.76 ft; minimum, no flow for many days during October, July, August, and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.3	7.0	5.6	3.0	8.9	31	19	16	2.3	.05	.00
2	.00	15	6.1	5.0	2.6	7.7	33	22	12	2.1	.08	.00
3	.00	30	5.2	4.5	2.4	7.0	43	25	9.5	1.9	.00	.00
4	.00	38	4.6	4.1	2.3	6.5	28	20	9.2	1.7	.00	.00
5	.00	25	4.0	3.9	2.2	5.7	23	18	8.4	1.7	.00	.43
6	.00	19	3.5	3.8	2.0	5.1	21	15	8.4	1.6	.00	2.0
7	.00	17	5.7	3.9	1.9	4.4	21	12	39	1.5	.25	.71
8	.00	14	19	3.7	1.7	4.0	23	11	36	1.3	2.0	.83
9	.00	12	17	3.4	1.6	3.9	27	7.4	23	1.2	.49	.95
10	.00	12	11	3.1	1.6	4.0	33	8.4	17	1.1	1.6	.58
11	.00	20	8.3	2.8	2.9	4.0	31	11	14	1.0	.38	.20
12	.00	19	7.7	2.6	3.3	4.0	31	5.6	9.5	.96	.08	.11
13	1.5	19	6.5	2.5	2.2	3.8	29	9.2	8.1	.85	.00	.05
14	2.0	19	14	2.9	3.1	4.0	27	12	8.1	.78	.00	.00
15	1.2	15	16	5.0	7.2	4.4	27	12	8.1	.69	.00	.00
16	.50	11	11	5.2	5.0	5.6	31	16	7.4	.64	.00	.16
17	.16	8.2	8.7	8.1	3.8	7.1	23	21	7.1	.57	.00	5.9
18	.05	8.3	7.4	9.4	3.2	6.9	19	21	6.2	.49	.00	3.6
19	.00	9.3	6.6	9.5	3.3	6.6	16	19	6.0	.39	.00	2.3
20	.00	14	6.0	18	3.9	6.9	12	16	5.5	.34	.00	1.6
21	.00	13	6.1	16	8.1	6.9	9.5	13	5.1	.28	.00	1.2
22	.00	9.9	20	11	27	6.2	8.8	12	4.8	.24	.00	.80
23	.00	11	27	9.1	23	6.1	8.8	12	4.4	.21	.00	.52
24	.00	11	22	7.8	26	5.7	8.1	13	4.1	.19	.00	.30
25	2.2	8.6	16	6.9	23	4.6	7.7	13	3.7	.14	.00	.15
26	4.6	7.4	11	6.2	17	3.9	8.1	12	3.3	.08	.00	.04
27	5.0	7.1	9.4	5.4	11	3.6	30	9.2	3.2	.00	.00	.00
28	6.3	8.3	7.8	4.7	9.5	3.1	37	8.4	2.9	.00	.00	.00
29	3.8	8.8	7.2	4.0	---	2.9	25	11	2.7	.00	.00	.00
30	2.5	8.0	7.1	3.5	---	14	19	27	2.5	.00	.00	.00
31	1.7	---	6.3	3.2	---	27	---	21	---	.00	.00	---
TOTAL	31.51	420.2	315.2	184.8	203.8	194.5	691.0	452.2	295.2	24.25	4.93	22.43
MEAN	1.02	14.0	10.2	5.96	7.28	6.27	23.0	14.6	9.84	.78	.16	.75
MAX	6.3	38	27	18	27	27	43	27	39	2.3	2.0	5.9
MIN	.00	2.3	3.5	2.5	1.6	2.9	7.7	5.6	2.5	.00	.00	.00
CFSM	.48	6.54	4.77	2.79	3.40	2.93	10.7	6.82	4.60	.36	.07	.35
IN.	.55	7.30	5.48	3.21	3.54	3.38	12.01	7.86	5.13	.42	.09	.39
AC-FT	63	833	625	367	404	386	1370	897	586	48	9.8	44

CAL YR 1984 TOTAL 3730.94 MEAN 10.2 MAX 145 MIN .00 CFSM 4.77 IN. 64.86 AC-FT 7400
WTR YR 1985 TOTAL 2840.02 MEAN 7.78 MAX 43 MIN .00 CFSM 3.64 IN. 49.37 AC-FT 5630

12115900 CHESTER MORSE LAKE AT CEDAR FALLS, WA

LOCATION.--Lat 47°24'34", long 121°43'22", in SW¼NE¼ sec.12, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, 100 ft upstream of Crib Dam, 3.1 mi southeast of town of Cedar Falls, and at mile 37.2.

DRAINAGE AREA.--78.4 mi².

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Nonrecording gage. Datum of gage is 7.39 ft above National Geodetic Vertical Datum of 1929 (levels by city of Seattle).

REMARKS.--Reservoir is formed by wood crib dam. Usable capacity, 37,186 acre-ft between gage heights 1,532 ft, minimum operation level, and 1,555 ft, spillway crest. Unused storage below gage height 1,532 ft is 38,137 acre-ft. Occasionally, elevation of downstream Cedar Lake exceeds 1,555 ft and wood crib dam is submerged. Chester Morse Lake is then controlled by masonry gravity dam at Cedar Lake. Water is used by city of Seattle for municipal water supply and power production. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Gage-height record furnished by city of Seattle.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 1,566.82 ft Dec. 3, 1977; minimum observed, 1,535.60 ft Oct. 16, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 1,560.05 ft June 12; minimum observed, 1,541.70 ft Oct. 25.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1543.61	1542.85	1547.27	1546.80	1544.30	1545.60	1547.62	1554.20	1558.64	1557.56	1549.63	1543.30
2	1543.41	1543.10	1546.99	1546.78	1544.10	1545.59	1548.73	1554.67	1558.42	1557.33	1549.40	1543.10
3	1542.98	1543.85	1546.50	1546.38	1544.06	1545.60	1550.15	1555.26	1558.22	1557.06	1549.16	1542.85
4	1542.92	1545.60	1546.23	1546.16	1544.00	1545.82	1551.36	1555.84	1558.06	1556.83	1548.86	1542.62
5	1542.86	1546.42	1546.19	1545.90	1544.00	1545.83	1552.12	1556.08	1558.22	1556.56	1548.62	1542.51
6	1542.55	1546.55	1546.04	1545.72	1544.00	1545.69	1552.80	1556.30	1558.16	1556.34	1548.38	1542.60
7	1542.40	1546.59	1546.11	1545.62	---	1545.60	1553.22	1556.31	1558.14	1556.16	1548.10	1542.75
8	1542.20	1547.21	1546.40	1545.40	1543.60	1545.62	1553.64	1556.36	1559.50	1555.92	1547.98	1542.62
9	1542.25	1547.32	1546.60	1545.32	---	1545.49	1554.04	1556.44	1560.00	1555.62	1547.80	1542.60
10	1542.12	1547.40	1546.75	1545.18	---	1545.47	1554.51	1556.66	1560.04	1555.26	1547.76	1542.48
11	1542.02	1547.73	1546.85	1544.96	---	1545.50	1554.98	1556.84	1560.04	1554.99	1547.62	1542.48
12	1542.18	1548.15	1547.20	1544.68	1543.05	1545.42	1555.34	1556.87	1560.05	1554.73	1547.41	1542.42
13	1542.44	1548.38	1547.26	1544.54	1542.96	1545.30	1555.82	1556.90	1559.92	1554.46	1547.26	1542.40
14	1542.75	1548.83	1547.15	1544.38	1542.78	1545.28	1556.06	1557.03	1559.72	1554.21	1547.03	1542.24
15	1542.96	1548.99	1547.57	1544.32	1542.80	1545.30	1556.36	1557.14	1559.80	1553.92	1546.97	1542.25
16	1543.02	1548.95	1547.80	1544.38	1542.80	1545.22	1556.60	1557.49	1559.86	1553.69	1546.79	1542.20
17	1543.08	1548.86	1547.96	1544.20	1542.74	1545.24	1556.80	1558.11	1559.86	1553.37	1546.51	1542.32
18	1542.98	1548.75	1547.54	1544.22	1542.75	1545.42	1556.76	1558.67	1559.70	1553.14	1546.38	1542.60
19	1542.74	1548.81	1547.28	1544.22	1542.67	1545.51	1556.52	1558.91	1559.66	1553.04	1546.06	1542.62
20	1542.76	1548.87	1546.98	1544.26	1542.68	1545.48	1556.14	1559.15	1559.47	1552.83	1545.90	1542.63
21	1542.30	1548.93	1546.82	1544.62	1542.70	1545.60	1555.68	1559.13	1559.22	1552.54	1545.78	1542.72
22	1542.12	1549.10	1546.74	1544.68	1542.98	1545.73	1555.16	1559.09	1559.04	1552.22	1545.61	1542.80
23	1541.94	1548.74	1547.36	1544.82	1543.30	1545.83	1554.70	1559.11	1558.92	1551.98	1545.42	1542.81
24	1541.82	1548.60	1547.86	1544.84	1543.78	1545.96	1554.27	1559.19	1558.82	1551.71	1545.19	1542.85
25	1541.70	1548.38	1547.90	1544.80	1544.61	1545.90	1553.93	1559.38	1558.66	1551.46	1544.90	1542.92
26	1543.31	1548.09	1547.89	1544.80	1545.04	1545.95	1553.28	1559.40	1558.45	1551.24	1544.68	1542.79
27	1542.63	1548.10	1547.77	1544.68	1545.30	1545.88	1552.86	1559.38	1558.34	1550.93	1544.48	1542.63
28	1542.88	1547.82	1547.82	1544.62	1545.45	1545.90	1553.48	1559.22	1558.18	1550.74	1544.24	1542.50
29	1543.00	1547.61	1547.40	1544.54	---	1545.91	1553.92	1558.98	1557.94	1550.45	1544.10	1542.38
30	1543.00	1547.43	1547.24	1544.48	---	1545.94	1553.96	1558.97	1557.76	1550.09	1543.75	1542.15
31	1542.93	---	1546.95	1544.35	---	1546.82	---	1558.95	---	1549.89	1543.54	---
MEAN	1542.64	1547.53	1547.11	1544.99	---	1545.66	1554.03	1557.61	1559.03	1553.75	1546.62	1542.60
MAX	1543.61	1549.10	1547.96	1546.80	---	1546.82	1556.80	1559.40	1560.05	1557.56	1549.63	1543.30
MIN	1541.70	1542.85	1546.04	1544.20	---	1545.22	1547.62	1554.20	1557.76	1549.89	1543.54	1542.15

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12116060 CEDAR LAKE (MASONRY POOL) NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°24'43", long 121°45'04", in NE¼NW¼ sec.11, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, at Masonry Dam, 1.6 mi southeast of town of Cedar Falls, and at mile 35.6.

DRAINAGE AREA.--78.4 mi².

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.39 ft above National Geodetic Vertical Datum of 1929 (levels by city of Seattle).

REMARKS.--Reservoir is formed by masonry gravity dam. Usable capacity, 40,285 acre-ft between gage heights 1,530.0 ft, normal minimum regulating pool, and 1,554.6 ft, normal maximum regulating pool. Unused storage below gage height 1,530.0 ft, 36,000 acre-ft. Water is used by city of Seattle for municipal water supply and power production.

COOPERATION.--Gage-height record furnished by city of Seattle.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 1,566.82 ft Dec. 3, 1977; minimum not determined (during period Aug. 2 to Sept. 19, 1978, while the pool was drained for maintenance).

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 1,560.05 ft June 12; minimum observed, 1,519.40 ft Oct. 13.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1535.41	1534.02	1547.27	1546.64	1539.44	1543.24	1547.62	1554.20	1558.64	1557.56	1549.63	1540.12
2	1538.35	1533.68	1546.99	1546.31	1539.28	1543.67	1548.73	1554.67	1558.42	1557.33	1549.40	1539.72
3	1536.82	1533.78	1546.50	1545.90	1539.46	1543.95	1550.15	1555.26	1558.22	1557.06	1549.16	1539.33
4	1535.28	1534.65	1546.23	1545.00	1539.01	1544.19	1551.36	1555.84	1558.06	1556.83	1548.86	1540.04
5	1533.78	1539.79	1546.19	1543.98	1539.13	1544.27	1552.12	1556.08	1558.22	1556.56	1548.62	1540.19
6	1532.03	1544.76	1546.04	1542.54	1539.33	1543.93	1552.80	1556.30	1558.16	1556.34	1548.38	1540.19
7	1531.28	1546.59	1545.84	1542.30	1539.77	1543.63	1553.22	1556.31	1558.14	1556.16	1548.10	1539.55
8	1530.74	1547.21	1545.92	1541.75	1539.82	1543.68	1553.64	1556.36	1559.50	1555.92	1547.98	1539.85
9	1530.24	1547.32	1546.42	1540.70	1538.99	1543.68	1554.04	1556.44	1560.00	1555.62	1547.80	1539.96
10	1527.94	1547.40	1546.75	1539.83	1538.20	1543.63	1554.51	1556.66	1560.04	1555.26	1547.76	1539.94
11	1525.22	1547.73	1546.85	1539.72	1537.82	1543.37	1554.98	1556.84	1560.04	1554.99	1547.62	1539.94
12	1522.06	1548.15	1546.96	1540.38	1538.13	1543.24	1555.34	1556.87	1560.05	1554.73	1547.41	1538.44
13	1519.40	1548.38	1547.02	1540.60	1538.20	1543.45	1555.82	1556.90	1559.92	1554.46	1547.26	1537.92
14	1519.60	1548.83	1547.15	1540.63	1538.12	1543.24	1556.06	1557.03	1559.72	1554.21	1547.03	1537.22
15	1520.10	1548.99	1547.57	1540.54	1538.67	1543.15	1556.36	1557.14	1559.76	1553.92	1546.93	1536.60
16	1520.10	1548.95	1547.80	1540.47	1539.00	1543.15	1556.60	1557.49	1559.82	1553.69	1546.60	1536.12
17	1520.27	1548.86	1547.96	1540.36	1539.08	1542.92	1556.80	1558.11	1559.82	1553.37	1546.37	1535.60
18	1525.86	1548.75	1547.54	1540.32	1539.05	1542.92	1556.76	1558.67	1559.66	1553.14	1546.23	1535.13
19	1529.60	1548.81	1546.70	1540.31	1539.06	1543.04	1556.52	1558.91	1559.62	1553.04	1545.92	1534.88
20	1531.26	1548.87	1546.70	1540.30	1539.20	1542.95	1556.14	1559.15	1559.47	1552.83	1545.43	1534.82
21	1532.01	1548.93	1546.56	1540.41	1539.28	1542.80	1555.68	1559.13	1559.22	1552.54	1544.92	1533.40
22	1532.50	1549.10	1546.74	1540.54	1539.50	1543.00	1555.16	1559.09	1559.04	1552.22	1544.48	1531.57
23	1532.80	1548.74	1547.36	1540.71	1539.96	1543.25	1554.70	1559.11	1558.92	1551.98	1544.06	1530.12
24	1533.57	1548.60	1547.86	1540.83	1540.44	1543.58	1554.27	1559.19	1558.82	1551.71	1543.69	1527.45
25	1534.03	1548.38	1547.90	1540.88	1540.96	1543.73	1553.93	1559.38	1558.66	1551.46	1543.38	1525.90
26	1533.68	1548.09	1547.89	1540.95	1542.15	1544.51	1553.28	1559.40	1558.45	1551.24	1543.18	1528.01
27	1533.77	1548.10	1547.77	1540.92	1542.94	1544.94	1552.86	1559.38	1558.34	1550.93	1542.68	1529.59
28	1533.98	1547.82	1547.56	1540.89	1543.14	1545.04	1553.48	1559.22	1558.18	1550.74	1541.82	1529.20
29	1534.15	1547.61	1547.40	1540.84	---	1544.84	1553.92	1558.98	1557.94	1550.45	1541.37	1528.79
30	1534.20	1547.43	1547.24	1540.49	---	1544.88	1553.96	1558.97	1557.76	1550.09	1540.83	1527.88
31	1534.43	---	1546.95	1539.64	---	1546.60	---	1558.95	---	1549.89	1540.42	---
MEAN	1530.14	1545.94	1547.02	1541.47	1539.54	1543.76	1554.03	1557.61	1559.02	1553.75	1545.91	1535.25
MAX	1538.35	1549.10	1547.96	1546.64	1543.14	1546.60	1556.80	1559.40	1560.05	1557.56	1549.63	1540.19
MIN	1519.40	1533.68	1545.84	1539.64	1537.82	1542.80	1547.62	1554.20	1557.76	1549.89	1540.42	1525.90

CAL YR 1984 MEAN 1550.21 MAX 1559.25 MIN 1519.40
WTR YR 1985 MEAN 1546.15 MAX 1560.05 MIN 1519.40

12116100 CANYON CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'11", long 121°45'55", in NW¼SE¼ sec.3, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 400 ft upstream from mouth, and 0.8 mi east of town of Cedar Falls.

DRAINAGE AREA.--0.19 mi².

PERIOD OF RECORD.--May 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder and wooden control. Elevation of gage is 1,040 ft, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 16-30. Records good. No regulation or diversion upstream from station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--40 years, 15.4 ft³/s, 11,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 131 ft³/s Dec. 7, 1975, gage height, 2.22 ft; minimum, 0.3 ft³/s for many days during 1953-55, 1958 and 1961 water years, Oct. 28, 29, 1966, Nov. 27, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40 ft³/s June 16-20, gage height, 1.46 ft; minimum, 2.1 ft³/s Oct. 28 to Nov. 1, Nov. 6-9, gage height, 0.78 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	2.2	7.5	7.9	3.9	2.6	5.2	24	35	33	16	7.4
2	5.6	2.4	7.5	7.9	3.8	2.6	5.4	24	34	32	15	7.1
3	5.5	2.5	7.5	7.9	3.6	2.6	5.5	24	33	32	15	7.0
4	5.2	2.5	7.9	7.9	3.4	2.6	5.6	24	32	31	15	6.7
5	5.2	2.3	7.9	7.9	3.4	2.7	5.8	24	32	31	14	6.4
6	4.9	2.1	7.9	7.6	3.4	2.8	6.2	24	32	30	14	6.3
7	4.9	2.1	7.9	7.5	3.4	2.8	6.8	25	32	29	14	6.1
8	4.6	2.1	7.9	7.5	3.4	2.8	7.6	26	32	28	13	6.0
9	4.5	2.1	7.9	6.8	3.4	3.0	8.3	26	31	27	13	5.7
10	4.3	2.3	7.9	6.7	3.4	3.0	9.6	27	32	27	13	5.5
11	4.1	2.6	7.9	6.4	3.4	3.1	11	27	33	27	12	5.4
12	3.9	2.6	7.8	6.4	3.3	3.4	12	27	35	27	12	5.2
13	3.9	2.8	7.5	6.2	3.2	3.4	13	27	35	26	12	5.2
14	3.6	3.2	7.8	6.1	3.2	3.4	15	27	37	25	12	4.9
15	3.6	3.5	8.1	5.8	3.0	3.5	17	28	38	24	11	4.9
16	3.4	3.8	7.9	5.8	3.0	3.6	18	29	39	24	11	4.9
17	3.3	3.8	7.9	5.5	3.0	3.6	20	29	40	24	11	4.8
18	3.1	4.0	7.9	5.4	2.9	3.6	21	29	40	23	11	4.7
19	2.9	4.2	7.9	5.2	2.8	4.1	23	30	40	22	10	4.6
20	2.8	4.6	7.9	5.2	2.8	4.1	25	30	39	22	10	4.5
21	2.7	4.9	7.9	4.7	2.8	4.1	26	31	39	21	9.7	4.4
22	2.6	5.3	7.9	4.6	2.8	4.1	26	31	38	20	9.6	4.3
23	2.5	5.8	7.9	4.5	2.8	4.3	27	32	38	20	9.2	4.2
24	2.4	6.1	7.9	4.3	2.8	4.3	27	32	37	20	9.0	4.1
25	2.3	6.3	7.9	4.3	2.8	4.3	27	33	37	19	8.7	4.0
26	2.3	6.5	7.9	4.1	2.6	4.5	27	33	36	18	8.6	4.0
27	2.3	6.6	7.9	4.1	2.6	4.6	27	34	35	18	8.3	3.9
28	2.2	7.0	7.9	4.1	2.6	4.6	27	34	35	17	8.2	3.8
29	2.1	7.2	7.9	4.0	---	4.6	25	34	35	17	7.9	3.7
30	2.1	7.7	7.9	3.9	---	4.8	24	35	35	17	7.8	3.6
31	2.1	---	7.9	3.9	---	5.2	---	35	---	17	7.5	---
TOTAL	110.7	121.1	243.3	180.1	87.5	112.7	504.0	895	1066	748	348.5	153.3
MEAN	3.57	4.04	7.85	5.81	3.12	3.64	16.8	28.9	35.5	24.1	11.2	5.11
MAX	5.8	7.7	8.1	7.9	3.9	5.2	27	35	40	33	16	7.4
MIN	2.1	2.1	7.5	3.9	2.6	2.6	5.2	24	31	17	7.5	3.6
AC-FT	220	240	483	357	174	224	1000	1780	2110	1480	691	304

CAL YR 1984 TOTAL 5040.6 MEAN 13.8 MAX 31 MIN 2.1 AC-FT 10000
WTR YR 1985 TOTAL 4570.2 MEAN 12.5 MAX 40 MIN 2.1 AC-FT 9060

12116500 CEDAR RIVER AT CEDAR FALLS, WA

LOCATION.--Lat 47°25'02", long 121°47'27", in SW¼SE¼ sec.4, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on right bank 0.5 mi downstream from Seattle municipal powerplant at town of Cedar Falls, 4.0 mi downstream from Chester Morse Lake, and at mile 33.2.

DRAINAGE AREA.--84.2 mi².

PERIOD OF RECORD.--April 1914 to current year.

REVISED RECORDS.--WSP 722: 1930. WSP 1286: 1934(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 902.1 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. All artificially diverted water returned to river upstream from station. Flow regulated by Chester Morse Lake (station 12115900) and Cedar Lake (station 12116060).

AVERAGE DISCHARGE.--71 years, 321 ft³/s, 232,600 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,860 ft³/s Dec. 3, 1975, gage height, 11.68 ft; no flow for part of Nov. 25, 1917, Aug. 18, 1923; minimum daily, 0.5 ft³/s Oct. 6, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft³/s Apr. 17, gage height, 7.24 ft; minimum, 30 ft³/s Sept. 3, 4, gage height, 4.79 ft; minimum daily, 47 ft³/s Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	270	428	373	184	96	137	425	757	202	118	136
2	220	296	424	364	160	96	140	428	753	197	136	136
3	228	310	396	363	136	95	156	436	749	197	134	69
4	227	239	222	354	163	95	143	430	314	195	132	50
5	223	185	173	348	143	133	134	424	417	196	130	103
6	164	177	173	295	130	158	125	422	748	196	128	81
7	157	170	173	256	126	122	213	365	800	194	132	59
8	157	208	189	274	159	123	399	290	788	179	92	52
9	161	234	187	284	212	91	663	228	770	173	72	63
10	162	234	181	285	212	106	734	211	743	182	63	60
11	163	241	173	172	179	150	734	222	349	166	62	47
12	161	241	157	164	159	81	768	221	584	160	61	49
13	108	243	160	163	160	99	833	224	655	161	62	65
14	68	284	176	161	135	110	885	231	558	159	60	72
15	84	321	173	158	113	108	924	204	438	158	58	74
16	86	312	167	161	111	119	998	182	264	107	60	80
17	62	314	363	160	112	127	1010	513	434	157	60	95
18	76	312	632	158	112	117	972	730	441	131	69	94
19	116	319	577	161	108	135	911	754	441	147	79	92
20	137	335	289	164	104	165	844	769	411	135	91	91
21	140	330	281	164	104	164	780	762	438	134	97	91
22	132	381	313	159	102	167	744	761	217	134	97	90
23	141	429	394	158	107	177	740	769	216	135	92	121
24	169	430	532	157	114	177	735	784	217	135	90	112
25	208	427	390	154	82	122	734	819	211	134	89	60
26	225	426	471	153	48	82	734	811	208	133	90	61
27	224	242	388	152	66	80	749	787	209	132	136	139
28	224	433	467	152	100	90	764	767	207	130	143	156
29	224	434	383	154	---	110	748	760	206	128	138	168
30	217	434	386	212	---	124	596	767	205	132	138	178
31	243	---	378	214	---	137	---	761	---	132	137	---
TOTAL	5057	9211	9796	6647	3641	3756	19047	16257	13748	4851	3046	2744
MEAN	163	307	316	214	130	121	635	524	458	156	98.3	91.5
MAX	243	434	632	373	212	177	1010	819	800	202	143	178
MIN	62	170	157	152	48	80	125	182	205	107	58	47
AC-FT	10030	18270	19430	13180	7220	7450	37780	32250	27270	9620	6040	5440

CAL YR 1984 TOTAL 123208 MEAN 337 MAX 2130 MIN 51 AC-FT 244400
WTR YR 1985 TOTAL 97801 MEAN 268 MAX 1010 MIN 47 AC-FT 194000

12117000 TAYLOR CREEK NEAR SELLECK, WA

LOCATION.--Lat 47°23'12", long 121°50'42", in NW¼NW¼ sec.19, T.22 N., R.8 E., King County, Hydrologic Unit 17110012, Snoqualmie National Forest, on left bank 0.6 mi upstream from mouth, and 1.3 mi northeast of Selleck.

DRAINAGE AREA.--17.2 mi².

PERIOD OF RECORD.--June to October 1945, August 1956 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 940 ft, from topographic map. June to October 1945 on right bank 350 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 24 to Dec. 3, Dec. 26-28. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--29 years, 99.1 ft³/s, 78.24 in/yr, 71,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,730 ft³/s Jan. 29, 1965, gage height, 5.78 ft from rating curve extended above 1,100 ft³/s on basis of slope-area measurement of peak flow; minimum, 15 ft³/s Oct. 3, 4, 7-14, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1345	*338	*3.45				

Minimum discharge, 18 ft³/s Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	50	69	80	55	89	168	117	82	43	28	20
2	21	123	66	76	53	82	160	118	78	41	29	21
3	21	149	64	74	49	78	212	131	73	41	26	20
4	22	163	60	73	45	79	169	115	75	40	25	19
5	21	117	55	71	47	75	146	105	70	39	25	28
6	21	78	53	71	48	71	129	97	74	39	25	42
7	21	70	71	71	48	68	126	92	244	38	29	31
8	21	61	154	70	46	65	127	88	194	37	42	33
9	23	62	123	68	45	64	134	84	133	36	28	33
10	26	71	100	65	49	63	142	89	105	35	43	26
11	23	100	86	63	69	61	143	84	89	35	29	23
12	30	83	80	61	64	60	148	79	82	34	26	22
13	47	86	74	60	53	59	137	79	77	33	25	22
14	30	77	138	64	67	59	129	90	82	33	24	22
15	25	67	134	72	88	59	124	84	86	32	23	24
16	23	60	104	69	70	61	140	89	72	32	23	25
17	22	55	89	73	63	63	117	95	66	32	23	48
18	22	58	81	74	59	62	110	93	63	31	22	32
19	21	74	74	74	64	61	100	88	60	30	22	26
20	21	93	73	101	69	63	93	82	57	29	22	24
21	20	78	75	91	88	64	86	79	56	29	22	23
22	20	74	149	84	156	65	86	78	54	28	22	22
23	20	71	159	79	136	87	91	77	52	28	22	22
24	20	73	134	74	164	77	84	76	52	28	21	21
25	37	67	115	70	141	68	85	85	49	28	21	21
26	40	63	105	67	114	63	90	74	48	27	21	20
27	38	58	93	64	100	62	188	70	46	26	20	19
28	39	63	83	61	93	58	208	68	45	26	20	19
29	29	68	87	60	---	57	147	94	44	25	20	19
30	27	74	103	57	---	150	125	116	43	26	21	18
31	27	---	87	55	---	189	---	91	---	27	21	---
TOTAL	799	2386	2938	2192	2143	2282	3946	2807	2351	1008	770	745
MEAN	25.8	79.5	94.8	70.7	76.5	73.6	132	90.5	78.4	32.5	24.8	24.8
MAX	47	163	159	101	164	189	212	131	244	43	43	48
MIN	20	50	53	55	45	57	84	68	43	25	20	18
CFSM	1.50	4.62	5.51	4.11	4.45	4.28	7.67	5.26	4.56	1.89	1.44	1.44
IN.	1.73	5.16	6.35	4.74	4.63	4.94	8.53	6.07	5.08	2.18	1.67	1.61
AC-FT	1580	4730	5830	4350	4250	4530	7830	5570	4660	2000	1530	1480

CAL YR 1984 TOTAL 33686 MEAN 92.0 MAX 873 MIN 20 CFSM 5.35 IN. 72.86 AC-FT 66820
WTR YR 1985 TOTAL 24367 MEAN 66.8 MAX 244 MIN 18 CFSM 3.88 IN. 52.70 AC-FT 48330

12117500 CEDAR RIVER NEAR LANDSBURG, WA

LOCATION.--Lat 47°23'38", long 121°57'12", on west line NW¼SW¼ sec.17, T.22 N., R.7 E., King County, Hydrologic Unit 17110012, on left bank 1.8 mi upstream from intake of Seattle water-supply system near Landsburg, 4.0 mi east of Maple Valley, 5.9 mi downstream from Taylor Creek, and at mile 23.4.

DRAINAGE AREA.--121 mi², excludes Walsh Lake diversion which enters Cedar River at mile 19.5, and excludes 1.9 mi² of Walsh Lake drainage in Cedar River basin which is normally diverted into Issaquah Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1895 to current year (prior to October 1948, flow of Rock Creek included). Monthly discharge only for some periods, published in WSP 1316. Published as "near Seattle" 1895-98, "near Maple Valley" 1902, and as "near Ravensdale" 1898-1901, 1903-12.

REVISED RECORDS.--WSP 313: 1895-98, 1902-09. WSP 1286: 1912. WSP 1316: 1896-98(M), 1902-11(M). WSP 1736: 1960. WSP 1932: 1947, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 565.9 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1898, nonrecording gage at site 2.2 mi downstream at different datum. Mar. 24, 1901, to May 15, 1913, nonrecording gage at site 2 mi downstream at datum 535.84 ft above National Geodetic Vertical Datum of 1929 (levels by city of Seattle). Apr. 30, 1914, to Oct. 22, 1928, water-stage recorder 0.2 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 15-27, Feb. 22-25. Water-discharge records good. All diversions except Rock Creek returned to river upstream from station. Rock Creek, a tributary which entered naturally just upstream from station prior to 1932, is diverted during summer months to enter river at a point about 3.9 mi downstream from station. Some regulation by Chester Morse Lake (station 12115900) and Cedar Lake (station 12116060), 12.2 mi upstream. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--90 years, 695 ft³/s, 503,500 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s Nov. 19, 1911, gage height, 10.0 ft, from graph based on gage readings, site and datum then in use, by computation of peak flow over dam, peak caused by failure of flashboards at Chester Morse Lake; minimum observed, 83 ft³/s Sept. 19, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,600 ft³/s June 7, gage height, 3.15 ft; minimum, 267 ft³/s Sept. 4, gage height, 1.02 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	359	484	748	727	465	446	553	822	1140	503	381	363
2	412	662	724	708	442	431	560	819	1140	496	397	362
3	434	701	704	702	409	419	618	846	1120	491	392	322
4	439	683	515	690	425	423	573	822	767	488	385	274
5	435	517	441	678	412	455	530	801	722	485	384	339
6	384	470	432	637	401	462	500	785	1090	485	379	347
7	372	446	452	588	395	428	571	743	1430	483	390	316
8	370	453	634	597	408	415	751	645	1370	471	389	308
9	376	489	573	602	462	386	1030	590	1250	454	343	313
10	385	500	536	598	472	392	1110	557	1200	463	349	308
11	380	563	502	505	482	419	1110	569	772	453	330	285
12	382	535	484	474	457	361	1150	556	966	437	321	281
13	384	551	470	469	433	377	1200	556	1030	439	320	292
14	309	556	592	469	437	381	1240	588	1000	436	315	305
15	309	586	660	482	456	377	1270	560	842	433	312	306
16	312	560	520	476	423	390	1340	525	643	388	310	310
17	288	558	520	478	411	392	1340	772	792	426	312	357
18	289	565	800	479	401	363	1300	1080	787	403	315	336
19	318	586	880	481	409	401	1250	1110	779	418	323	322
20	340	659	620	537	424	427	1190	1120	749	405	329	318
21	342	628	520	517	455	428	1120	1120	793	399	338	315
22	337	637	660	497	670	436	1090	1110	547	399	335	314
23	337	742	750	484	620	489	1090	1120	539	398	332	327
24	360	736	850	475	650	463	1080	1130	536	398	328	339
25	410	710	810	464	600	395	1090	1180	530	396	326	291
26	440	695	800	456	455	362	1090	1160	520	393	326	277
27	442	549	800	450	429	360	1200	1140	516	390	351	327
28	443	752	822	445	457	361	1260	1120	514	388	370	357
29	427	778	742	442	---	381	1180	1140	510	386	365	364
30	420	789	786	478	---	574	1040	1210	508	387	366	377
31	435	---	747	496	---	583	---	1150	---	390	366	---
TOTAL	11670	18140	20094	16581	12960	12997	30426	27446	25102	13381	10779	9652
MEAN	376	605	648	535	463	419	1014	885	837	432	348	322
MAX	443	789	880	727	670	583	1340	1210	1430	503	397	377
MIN	288	446	432	442	395	360	500	525	508	386	310	274
AC-FT	23150	35980	39860	32890	25710	25780	60350	54440	49790	26540	21380	19140

CAL YR 1984	TOTAL	260112	MEAN	711	MAX	3510	MIN	288	AC-FT	515900
WTR YR 1985	TOTAL	209228	MEAN	573	MAX	1430	MIN	274	AC-FT	415000

12117500 CEDAR RIVER NEAR LANDSBURG, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1953 to September 1985 (discontinued).

INSTRUMENTATION.--Temperature recorder since August 1953.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 19.5°C July 27, 28, 1960, July 13, 1961; minimum, 1.0°C Dec. 31, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 16.0°C July 18-20, 22, 25-29; minimum recorded, 3.0°C Feb. 1.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	4.5	4.0	4.5
2							---	---	---	4.5	4.0	4.5
3							---	---	---	4.5	4.5	4.5
4							---	---	---	5.0	4.5	4.5
5							---	---	---	5.0	4.5	4.5
6							---	---	---	5.5	4.5	5.0
7							---	---	---	5.5	5.0	5.5
8							---	---	---	5.0	4.5	5.0
9							---	---	---	4.5	4.5	4.5
10							---	---	---	4.5	4.5	4.5
11							---	---	---	5.5	4.5	5.0
12							---	---	---	5.0	5.0	5.0
13							---	---	---	5.5	5.0	5.0
14							---	---	---	5.5	5.0	5.5
15							---	---	---	6.0	5.5	6.0
16							---	---	---	6.0	5.5	5.5
17							---	---	---	6.5	5.5	6.0
18							---	---	---	6.0	5.5	5.5
19							---	---	---	6.0	5.5	6.0
20							---	---	---	6.0	6.0	6.0
21							---	---	---	6.0	5.5	5.5
22							---	---	---	6.0	5.5	5.5
23							---	---	---	5.5	5.0	5.5
24							---	---	---	5.5	5.0	5.0
25							---	---	---	5.5	5.0	5.0
26							---	---	---	5.0	4.5	5.0
27							---	---	---	5.5	5.0	5.0
28							5.0	4.5	4.5	5.5	5.0	5.5
29							5.0	4.0	4.5	5.5	5.0	5.0
30							4.5	4.5	4.5	5.0	3.5	4.5
31							4.5	4.0	4.5	4.5	4.5	4.5
MONTH							---	---	---	6.5	3.5	5.0

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12117500 CEDAR RIVER NEAR LANDSBURG, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4.5	3.0	4.0	6.5	5.5	6.5	8.5	6.5	7.5	9.5	7.0	8.0
2	5.0	4.5	4.5	6.5	5.0	6.0	8.0	6.5	7.0	9.5	7.5	8.0
3	4.5	4.0	4.5	6.5	5.5	6.0	7.0	6.0	6.5	8.5	7.5	7.5
4	4.5	3.5	4.0	6.5	6.0	6.5	7.0	6.0	6.5	8.5	7.0	7.5
5	5.0	4.5	5.0	6.5	5.5	6.0	7.5	6.5	7.0	9.5	7.5	8.0
6	5.5	5.0	5.0	6.0	5.0	5.5	9.0	6.0	7.5	9.0	7.5	8.5
7	5.5	5.0	5.0	7.0	5.0	6.0	7.5	7.0	7.0	9.5	7.5	8.5
8	5.5	4.5	5.0	7.0	5.0	6.0	8.5	6.5	7.0	9.0	7.5	8.5
9	4.5	4.0	4.5	7.5	6.0	6.5	8.0	6.0	6.5	10.5	7.0	9.0
10	4.5	4.5	4.5	7.0	5.5	6.0	6.5	6.0	6.5	8.5	7.5	8.0
11	5.0	4.5	5.0	7.0	5.0	6.0	6.5	6.0	6.5	9.0	7.5	8.0
12	5.5	4.5	5.0	7.0	6.0	6.5	8.0	6.0	7.0	10.5	7.5	8.5
13	5.5	4.5	5.0	7.5	5.5	6.5	8.0	6.5	7.0	9.0	8.0	8.5
14	6.0	5.0	5.5	7.5	5.5	6.5	7.5	6.5	7.0	9.5	8.0	8.5
15	6.0	5.0	5.5	7.5	5.5	6.5	8.0	6.5	7.0	11.5	7.5	9.5
16	6.0	5.5	5.5	8.0	6.0	7.0	7.5	7.0	7.0	12.5	8.5	10.5
17	6.0	5.0	5.5	7.0	6.5	7.0	7.5	6.5	7.0	11.5	8.5	10.0
18	6.0	5.0	5.5	7.0	7.0	7.0	7.5	6.5	7.0	11.0	9.0	10.0
19	6.0	5.5	6.0	7.5	7.0	7.0	7.0	6.0	6.5	10.5	9.0	10.0
20	6.5	6.0	6.0	7.5	6.0	7.0	7.0	6.0	6.5	10.0	9.5	10.0
21	6.0	6.0	6.0	6.5	6.0	6.0	7.5	5.5	6.5	11.5	9.5	10.5
22	6.0	5.0	5.5	6.5	6.0	6.0	7.0	6.0	6.5	12.0	10.0	10.5
23	6.0	6.0	6.0	6.5	5.5	6.0	7.0	6.5	6.5	11.5	10.0	10.5
24	6.5	5.5	6.0	6.0	5.5	5.5	7.0	6.0	6.5	11.5	10.5	11.0
25	6.0	4.0	5.5	7.0	5.5	6.0	7.5	6.0	6.5	11.5	10.5	11.0
26	7.0	3.5	5.5	7.0	6.0	6.5	7.0	6.5	6.5	11.5	10.5	11.0
27	7.0	5.5	6.5	7.0	6.0	6.5	7.0	6.5	6.5	11.0	10.5	10.5
28	6.5	5.5	6.0	7.5	6.0	6.5	7.0	6.5	6.5	11.0	10.5	10.5
29	---	---	---	7.0	6.0	6.5	8.0	6.5	7.0	10.5	10.0	10.5
30	---	---	---	6.5	6.0	6.5	8.5	6.5	7.5	11.0	10.0	10.5
31	---	---	---	7.0	6.0	6.5	---	---	---	12.0	10.0	10.5
MONTH	7.0	3.0	5.5	8.0	5.0	6.5	9.0	5.5	7.0	12.5	7.0	9.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.5	10.5	10.5	14.5	11.0	12.5	13.5	12.0	13.0	13.5	12.0	12.5
2	11.0	10.5	10.5	15.0	11.5	13.0	13.5	13.0	13.0	13.5	12.0	13.0
3	11.5	10.5	11.0	15.0	11.5	13.0	15.5	12.5	14.0	13.0	11.0	12.0
4	11.5	10.5	11.0	15.0	12.0	13.0	14.0	13.0	13.5	11.0	10.0	10.5
5	11.0	10.0	10.5	14.0	11.5	12.5	15.0	12.5	13.5	12.0	11.0	12.0
6	11.0	10.5	11.0	14.5	11.5	13.0	15.0	12.0	13.5	12.0	11.0	11.5
7	11.0	10.5	11.0	15.0	12.0	13.5	13.5	12.5	13.0	12.0	10.5	11.0
8	12.0	10.5	11.0	15.5	12.0	13.5	13.0	12.0	12.5	11.0	10.5	10.5
9	12.0	10.0	10.5	15.5	12.0	13.5	12.5	11.5	12.0	11.5	10.5	11.0
10	12.5	10.0	11.0	15.5	12.0	13.5	12.5	11.0	12.0	12.0	11.0	11.5
11	13.0	9.5	11.0	15.5	12.5	13.5	13.5	11.0	12.0	11.5	10.5	11.0
12	12.0	10.5	11.0	15.5	12.0	13.5	13.5	11.0	12.5	12.0	10.5	11.0
13	11.5	10.5	11.0	15.0	11.5	13.5	14.0	11.0	12.5	11.5	10.5	11.0
14	11.5	11.0	11.0	15.5	12.0	13.5	14.0	11.0	12.5	11.5	10.5	11.0
15	12.0	11.0	11.5	15.5	12.0	13.5	13.5	11.0	12.5	11.5	10.5	11.0
16	13.0	9.5	11.0	14.0	12.5	13.0	14.0	11.0	12.5	11.0	10.5	10.5
17	14.0	10.5	12.0	15.5	12.5	13.5	14.0	11.5	12.5	11.0	10.5	10.5
18	14.0	11.0	12.0	16.0	12.5	14.0	13.0	11.0	12.0	11.5	10.5	11.0
19	14.0	11.0	12.5	16.0	13.0	14.5	12.5	11.5	12.0	11.5	10.5	11.0
20	14.0	11.0	12.5	16.0	12.5	14.0	12.5	11.5	12.0	11.5	10.0	11.0
21	14.0	11.0	12.5	15.5	12.5	14.0	13.5	11.0	12.0	11.5	10.5	11.0
22	13.0	11.0	11.5	16.0	12.5	14.0	14.0	11.0	12.5	11.0	9.5	10.5
23	12.5	10.5	11.5	14.0	13.0	13.5	14.0	11.5	12.5	11.5	9.5	10.5
24	12.5	10.5	11.0	14.5	13.0	13.5	14.0	12.0	13.0	12.0	10.5	11.0
25	14.0	10.0	12.0	16.0	12.5	14.0	14.0	11.5	13.0	11.5	10.0	10.5
26	14.0	10.5	12.0	16.0	12.5	14.0	14.0	11.5	12.5	11.0	9.5	10.5
27	12.5	11.0	11.5	16.0	12.5	14.0	13.5	11.0	12.5	11.5	9.5	10.5
28	14.0	10.5	12.0	16.0	12.5	14.0	14.0	12.5	13.0	11.0	10.5	10.5
29	12.5	11.0	12.0	16.0	13.0	14.5	14.0	11.5	13.0	11.0	9.5	10.5
30	13.5	11.0	12.0	14.0	13.0	13.5	13.0	12.5	12.5	11.0	9.5	10.5
31	---	---	---	13.5	13.0	13.0	13.5	12.0	13.0	---	---	---
MONTH	14.0	9.5	11.5	16.0	11.0	13.5	15.5	11.0	12.5	13.5	9.5	11.0

12119000 CEDAR RIVER AT RENTON, WA

LOCATION.--Lat 47°28'58", long 122°12'08", in SW¼NW¼ sec.17, T.23 N., R.5 E., King County, Hydrologic Unit 17110012, on left bank 125 ft downstream from bridge on Mill Avenue at Renton, and at mile 1.6.

DRAINAGE AREA.--184 mi², includes 3.67 mi² in vicinity of Youngs Lake in Big Soos Creek basin, excludes 1.9 mi² from upper Rock Creek, Cedar River basin, normally diverted into Issaquah Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1901 to July 1903 (fragmentary), September 1906 to December 1907 (monthly discharge only), August 1945 to current year.

REVISED RECORD.--WSP 1316: 1901-02. WSP 1932: Drainage area. WDR WA-75-1: 1972-74.

GAGE.--Water-stage recorder. Datum of gage is 15.20 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1908, nonrecording gages within 1 mi of present site, at datum 10.67 ft above National Vertical Datum of 1929. Aug. 7, 1945, to Aug. 15, 1947, water-stage recorder at site 700 ft upstream at datum 20.13 ft above National Geodetic Vertical Datum of 1929, and Aug. 16, 1947, to Dec. 7, 1950, at datum 19.13 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow partly regulated by Chester Morse Lake and Masonry Dam for operation of powerplant at Cedar Falls 32.1 mi upstream from gage. An average daily discharge of about 189 ft³/s was diverted during the year at Landsburg by the city of Seattle for municipal use.

AVERAGE DISCHARGE.--40 years (water years 1946-85), 684 ft³/s, 495,600 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,800 ft³/s Dec. 4, 1975, gage height, 14.14 ft from outside high-water mark; minimum daily, 30 ft³/s July 1, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,660 ft³/s June 7, gage height, 9.87 ft; minimum, 107 ft³/s Aug. 18, gage height, 7.28 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196	362	795	798	417	426	604	769	1040	274	139	134
2	200	574	744	763	401	444	576	773	1040	265	129	131
3	208	710	718	777	359	437	713	794	1010	256	122	130
4	208	667	592	730	359	466	616	770	789	250	118	125
5	212	463	447	695	356	486	548	745	606	242	120	134
6	200	388	426	669	347	481	503	724	899	226	119	146
7	188	359	441	594	347	454	499	698	1380	225	125	141
8	200	351	738	623	339	426	608	566	1440	217	157	150
9	216	397	711	625	376	396	872	490	1170	166	150	188
10	288	428	628	614	392	393	1020	446	1090	162	152	158
11	280	554	572	555	505	427	1030	502	838	161	197	143
12	279	496	574	492	481	364	1080	493	894	144	142	135
13	293	515	529	483	429	333	1090	533	893	145	133	144
14	276	506	587	476	446	350	1130	539	897	141	120	156
15	279	525	731	489	507	345	1150	465	686	137	113	160
16	278	488	578	478	468	335	1200	420	517	141	112	173
17	272	477	579	477	442	354	1220	549	583	142	116	213
18	266	479	859	479	425	346	1200	935	582	132	113	204
19	289	500	946	485	417	373	1160	983	703	132	120	171
20	302	599	666	547	403	401	1140	996	522	123	119	188
21	304	593	582	529	398	408	1080	996	571	124	122	205
22	301	554	708	479	671	417	1020	975	407	126	119	207
23	312	689	837	445	626	484	982	995	368	124	120	206
24	318	739	886	437	650	502	969	973	357	125	121	212
25	316	702	842	372	626	462	984	1020	347	125	121	209
26	329	677	819	362	505	383	994	1000	345	120	126	207
27	308	635	801	347	420	379	1100	982	326	119	127	208
28	310	778	801	341	427	370	1300	984	307	119	133	202
29	303	834	724	339	---	375	1130	1000	296	117	129	201
30	310	875	851	358	---	476	1020	1100	289	118	131	206
31	311	---	825	428	---	758	---	1060	---	130	136	---
TOTAL	8352	16914	21537	16281	12539	13051	28538	24275	21192	5028	4001	5187
MEAN	269	564	695	525	448	421	951	783	706	162	129	173
MAX	329	875	946	798	671	758	1300	1100	1440	274	197	213
MIN	188	351	426	339	339	333	499	420	289	117	112	125
AC-FT	16570	33550	42720	32290	24870	25890	56610	48150	42030	9970	7940	10290

CAL YR 1984 TOTAL 245785 MEAN 672 MAX 5060 MIN 123 AC-FT 487500
WTR YR 1985 TOTAL 176895 MEAN 485 MAX 1440 MIN 112 AC-FT 350900

12119000 CEDAR RIVER AT RENTON, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—Water years 1959-71, March 1978 to current year.

PERIOD OF DAILY RECORD.—
WATER TEMPERATURES: August 1965 to February 1967, March 1978 to current year.

INSTRUMENTATION.--Temperature recorder for period of daily record.

REMARKS.--Interruptions in the record were due to malfunction of the instrument and buried probe.

EXTREMES FOR PERIOD OF DAILY RECORD.—
WATER TEMPERATURES: Maximum, 24.0°C Aug. 8, 1978; minimum, 0.0°C Dec. 30, 1978 to Jan. 1, 1979, Jan. 29, 1980.

EXTREMES FOR CURRENT YEAR.—
WATER TEMPERATURES: Maximum recorded, 22.5°C July 19, 20; minimum recorded, 2.0°C Dec. 19.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.0	11.0	12.0	7.0	6.5	6.5	5.5	5.0	5.5			
2	12.5	11.5	12.0	7.5	6.5	7.0	5.0	4.0	4.5			
3	13.0	11.5	12.0	7.5	7.5	7.5	4.5	4.0	4.5			
4	13.0	12.0	12.5	7.5	7.5	7.5	4.5	3.0	4.0			
5	12.5	11.0	12.0	7.5	7.0	7.5	4.5	3.5	4.0			
6	12.5	11.5	12.0	8.0	7.5	8.0	5.0	4.0	4.0			
7	13.5	12.0	12.5	8.5	8.0	8.0	6.0	5.0	5.5			
8	13.5	12.5	13.0	8.5	7.5	8.0	6.0	6.0	6.0			
9	13.0	12.0	12.5	8.0	7.5	8.0	6.0	5.0	5.5			
10	12.5	12.0	12.0	8.0	8.0	8.0	5.5	5.5	5.5			
11	11.5	11.0	11.0	8.5	8.0	8.0	5.5	5.0	5.5			
12	11.0	10.0	10.5	8.5	8.0	8.5	5.5	5.5	5.5			
13	11.0	10.0	10.5	8.5	8.0	8.5	5.5	5.0	5.0			
14	10.5	9.5	9.5	8.0	6.5	7.0	6.0	5.5	6.0			
15	9.5	9.0	9.5	7.0	6.0	6.5	6.0	5.5	5.5			
16	9.0	8.0	8.5	6.5	6.0	6.5	5.5	5.0	5.5			
17	9.0	8.0	8.5	7.0	6.0	6.5	5.5	4.0	4.5			
18	9.0	8.0	8.5	7.5	7.0	7.0	4.0	2.5	3.0			
19	8.5	7.0	7.5	7.5	7.5	7.5	2.5	2.0	2.5			
20	8.5	7.0	8.0	7.5	7.5	7.5	3.0	2.5	2.5			
21	8.5	7.0	7.5	7.5	6.5	7.0	4.0	3.0	3.5			
22	8.0	7.0	7.5	6.5	5.5	6.0	5.0	4.0	4.5			
23	8.0	7.0	7.5	6.5	6.5	6.5	5.0	5.0	5.0			
24	9.0	8.0	8.5	6.5	6.0	6.5	---	---	---			
25	9.5	9.0	9.5	6.5	6.0	6.5	---	---	---			
26	9.5	8.5	9.0	6.5	6.0	6.5	---	---	---			
27	8.5	8.0	8.5	6.0	5.5	6.0	---	---	---			
28	8.5	8.0	8.5	6.0	6.0	6.0	---	---	---			
29	8.5	7.5	8.0	6.0	6.0	6.0	---	---	---			
30	8.0	8.0	8.0	6.0	5.5	5.5	---	---	---			
31	7.5	6.5	7.0	---	---	---	---	---	---			
MONTH	13.5	6.5	10.0	8.5	5.5	7.0	---	---	---			

12119000 CEDAR RIVER AT RENTON, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	10.0	8.0	9.0	10.5	8.0	9.5
2				---	---	---	9.5	8.5	9.0	11.0	9.0	10.0
3				---	---	---	9.0	7.5	8.5	10.5	9.0	9.5
4				---	---	---	8.0	7.0	7.5	10.0	8.0	9.0
5				---	---	---	9.0	7.5	8.0	10.5	8.0	9.0
6				---	---	---	10.5	7.0	8.5	10.5	8.5	9.5
7				---	---	---	10.0	8.5	9.0	11.0	9.0	10.0
8				---	---	---	11.0	8.0	9.0	11.0	9.0	10.0
9				---	---	---	11.0	7.5	9.0	12.0	8.5	10.0
10				---	---	---	9.0	7.5	8.0	11.5	9.5	10.0
11				---	---	---	8.0	7.0	7.5	11.0	8.0	9.5
12				---	---	---	10.0	7.0	8.5	12.0	8.5	10.0
13				---	---	---	10.0	7.0	8.5	11.0	9.5	10.0
14				---	---	---	9.0	7.5	8.5	11.0	9.0	10.0
15				---	---	---	9.5	7.5	8.5	13.0	8.5	10.5
16				---	---	---	9.0	8.0	8.5	15.0	11.0	13.0
17				---	---	---	8.5	7.5	8.0	15.0	12.0	13.5
18				---	---	---	8.5	7.5	8.0	13.5	10.5	12.0
19				---	---	---	8.0	7.0	7.5	12.5	10.0	11.5
20				---	---	---	8.5	6.5	7.5	11.5	10.5	11.0
21				---	---	---	8.5	5.5	7.0	13.5	10.0	11.5
22				---	---	---	7.5	7.0	7.5	14.0	10.5	12.0
23				---	---	---	9.0	7.0	8.0	14.0	11.0	12.5
24				---	---	---	8.0	7.0	7.5	13.5	11.5	12.5
25				---	---	---	8.5	6.0	7.0	13.0	11.5	12.0
26				6.5	5.5	6.0	8.0	7.0	7.5	13.0	11.0	12.0
27				7.5	6.0	6.5	8.0	7.5	7.5	12.5	11.0	11.5
28				8.0	6.0	7.0	8.5	7.0	7.5	12.5	11.0	11.5
29				7.5	7.0	7.5	10.0	7.0	8.0	11.5	11.0	11.0
30				8.0	7.0	7.5	10.0	7.0	8.5	12.0	10.5	11.0
31				8.0	7.0	7.5	---	---	---	13.0	10.5	12.0
MONTH				---	---	---	11.0	5.5	8.0	15.0	8.0	11.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.5	11.0	11.5	---	---	---	17.5	15.0	16.0	16.5	13.5	15.0
2	12.0	11.0	11.0	19.0	13.0	16.0	17.0	15.0	15.5	17.0	13.5	15.0
3	12.5	11.0	12.0	19.0	13.5	16.5	20.5	14.0	17.0	16.0	13.5	14.5
4	14.0	11.5	12.5	19.0	14.0	16.5	19.0	15.5	17.0	14.5	13.0	14.0
5	13.5	11.5	12.5	19.0	14.0	16.0	19.5	14.5	17.0	15.0	13.5	14.0
6	12.0	11.0	11.5	17.0	13.0	15.0	20.0	14.5	17.0	14.5	13.0	13.5
7	12.0	11.5	11.5	19.5	13.5	16.5	17.5	15.0	16.5	15.5	11.5	13.5
8	---	---	---	20.0	14.5	17.5	17.5	14.0	15.5	14.0	12.5	13.5
9	---	---	---	21.5	15.0	18.5	16.0	14.5	15.0	15.0	12.0	13.5
10	---	---	---	21.0	15.5	18.5	17.0	13.5	15.0	15.5	12.5	14.0
11	---	---	---	21.0	15.0	18.0	18.5	12.5	15.5	15.5	12.5	14.0
12	---	---	---	21.0	15.5	18.0	19.0	14.0	16.5	15.0	12.5	14.0
13	---	---	---	20.5	14.5	17.5	19.5	14.0	17.0	15.5	12.5	14.0
14	---	---	---	20.5	14.0	17.5	19.5	14.5	17.0	14.0	12.5	13.5
15	---	---	---	21.0	15.0	18.0	19.5	14.5	17.0	15.0	12.5	13.5
16	---	---	---	20.0	15.5	17.5	20.0	14.5	17.5	13.0	12.0	12.5
17	---	---	---	20.5	15.0	17.5	20.0	14.5	17.5	13.5	11.0	12.5
18	---	---	---	22.0	15.5	18.5	18.0	15.0	16.5	14.0	11.0	12.5
19	---	---	---	22.5	16.5	19.5	17.0	14.5	15.5	14.5	11.5	13.0
20	---	---	---	22.5	16.5	19.5	16.0	13.5	14.5	13.5	11.0	12.5
21	---	---	---	21.0	16.5	19.0	17.0	12.5	14.5	14.0	12.0	13.0
22	---	---	---	21.0	16.0	18.5	18.0	12.5	15.5	13.5	10.0	12.0
23	---	---	---	18.5	16.5	17.5	19.0	13.5	16.5	13.5	10.5	12.0
24	---	---	---	20.0	15.5	18.0	19.5	15.0	17.0	14.0	10.5	12.0
25	---	---	---	20.5	14.5	18.0	19.0	14.5	17.0	14.5	11.0	12.5
26	---	---	---	21.0	15.0	18.0	17.5	13.5	16.0	14.0	11.0	12.5
27	---	---	---	20.0	15.5	18.0	17.0	13.5	15.0	13.0	10.5	12.0
28	---	---	---	21.5	15.0	18.5	17.0	13.5	15.5	13.0	10.0	11.5
29	---	---	---	21.5	16.0	19.0	17.0	12.5	15.0	12.0	8.5	10.5
30	---	---	---	19.0	15.5	16.5	16.0	14.0	15.0	12.0	9.0	10.5
31	---	---	---	17.5	14.5	16.0	16.5	13.0	15.0	---	---	---
MONTH	---	---	---	---	---	---	20.5	12.5	16.0	17.0	8.5	13.0

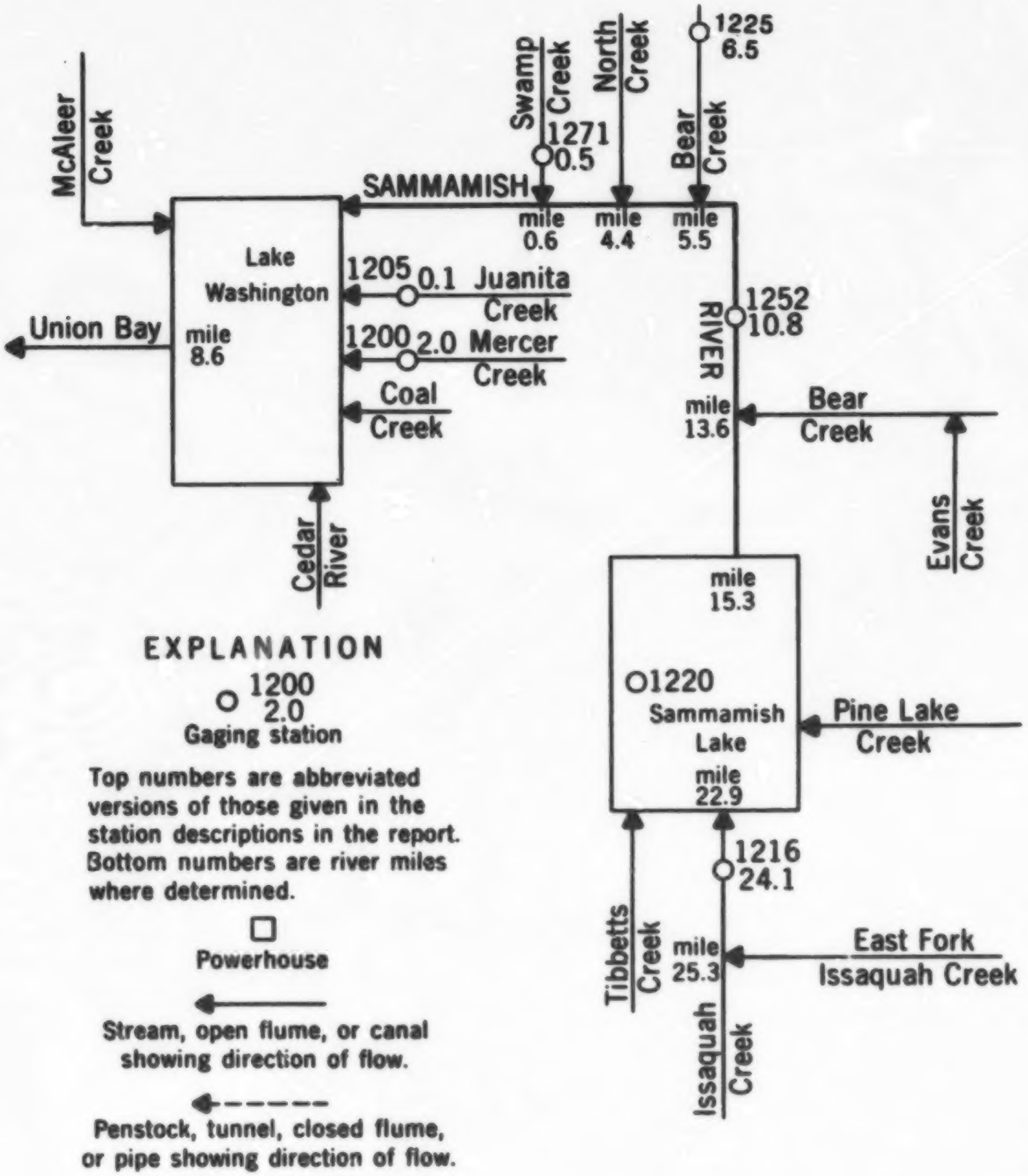
McAleer Creek
Swamp Creek
1271
0.5
North Creek
1225
6.5
Bear Creek
SAMMAMISH
mile 0.6
mile 4.4
mile 5.5
Lake Washington
mile 8.6
Union Bay
1205
0.1
Juanita Creek
1200
2.0
Mercer Creek
Coal Creek
Cedar River
1252
10.8
RIVER
mile 13.6
Bear Creek
Evans Creek
mile 15.3
1220
Sammamish Lake
mile 22.9
Pine Lake Creek
1216
24.1
Tibbetts Creek
mile 25.3
East Fork Issaquah Creek
Issaquah Creek
EXPLANATION
1200
2.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 14.--Gaging stations in Lake Washington basin (below Cedar River).

12120000 MERCER CREEK NEAR BELLEVUE, WA

LOCATION.--Lat 47°36'11", long 122°10'47", in NW¼NW¼ sec.4, T.24 N., R.5 E., King County, Hydrologic Unit 17110012, on left bank 40 ft upstream from Burlington Northern Railroad trestle, 1.2 mi southeast of Bellevue, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--12.0 mi².

PERIOD OF RECORD.--June to October 1945, June 1955 to current year.

REVISED RECORDS.--WSP 1446: Drainage area. WDR WA-83-1: 1977-79(P).

GAGE.--Water-stage recorder. Datum of gage is 17.11 ft above National Geodetic Vertical Datum of 1929 (levels by Municipality of Metropolitan Seattle engineers). Prior to June 5, 1959, at site 600 ft downstream at different datums.

REMARKS.--Estimated daily discharges: Dec. 18, 19, June 7-11. Records good. Natural flow affected by urbanization and construction of flood-control catchments.

AVERAGE DISCHARGE.--30 years, 22.7 ft³/s, 25.69 in/yr, 16,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 670 ft³/s Oct. 6, 1981, gage height, 5.58 ft; maximum gage height, 8.68 ft Mar. 6, 1972 caused by backwater from plugged culvert; minimum discharge, 1.9 ft³/s Aug. 6, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s (revised) and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 13	2245	315	3.88	June 7	1130	*353	*4.13
Dec. 8	1130	269	3.56				

Minimum discharge, 7.1 ft³/s Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	70	25	24	18	13	15	14	10	9.4	25	8.6
2	8.4	144	21	21	21	12	14	15	10	9.4	18	8.4
3	8.5	91	19	19	16	12	21	22	10	9.4	11	8.5
4	13	48	18	18	14	28	15	15	15	9.3	9.5	8.6
5	9.2	26	17	19	15	23	13	15	9.9	9.7	9.3	9.1
6	9.0	25	16	18	18	16	12	13	32	9.5	9.2	9.4
7	9.0	21	38	18	34	14	12	12	242	9.4	9.0	10
8	11	24	150	17	20	14	12	12	90	9.3	8.5	18
9	16	26	47	16	20	13	12	12	35	9.2	8.9	30
10	78	71	38	16	35	13	11	12	19	9.0	12	18
11	36	71	27	16	101	12	15	12	16	9.2	9.2	10
12	24	41	43	16	38	12	11	11	14	9.2	8.6	9.5
13	21	139	25	15	21	11	10	16	14	8.9	8.6	11
14	16	95	83	20	20	11	10	54	18	8.8	8.3	11
15	16	34	58	17	19	11	10	15	18	8.9	8.3	9.5
16	15	25	38	16	15	11	9.9	12	13	9.0	8.3	16
17	14	25	29	16	14	10	9.6	11	12	9.3	8.4	45
18	14	28	22	16	13	10	13	11	12	8.8	8.4	12
19	14	28	19	22	17	10	45	10	11	8.8	8.3	9.0
20	13	44	19	39	23	12	23	10	11	8.6	8.5	8.6
21	13	24	22	19	16	19	13	10	11	8.5	8.6	8.5
22	13	20	41	17	16	26	18	9.7	11	8.5	8.5	8.1
23	15	76	25	16	13	57	20	10	11	9.1	8.4	8.1
24	17	34	20	16	35	26	34	10	11	8.8	8.3	7.8
25	15	22	19	15	18	16	41	16	10	8.8	8.2	7.7
26	25	19	19	16	14	14	27	11	10	9.1	8.1	7.8
27	16	71	39	15	14	28	29	9.8	10	9.2	8.3	7.9
28	15	62	21	15	13	17	21	10	10	9.1	8.5	8.1
29	18	79	50	14	---	34	16	17	9.7	9.1	8.4	8.2
30	25	41	87	14	---	27	15	24	9.8	9.4	9.5	8.4
31	22	---	32	14	---	17	---	11	---	10	9.9	---
TOTAL	547.5	1524	1127	550	631	549	527.5	442.5	715.4	282.7	300.0	350.8
MEAN	17.7	50.8	36.4	17.7	22.5	17.7	17.6	14.3	23.8	9.12	9.68	11.7
MAX	78	144	130	39	101	57	45	54	242	10	25	45
MIN	8.4	19	16	14	13	10	9.6	9.7	9.7	8.5	8.1	7.7
CFSM	1.47	4.23	3.03	1.47	1.87	1.47	1.47	1.19	1.98	.76	.81	.97
IN.	1.70	4.72	3.49	1.70	1.96	1.70	1.64	1.37	2.22	.88	.93	1.09
AC-FT	1090	3020	2240	1090	1250	1090	1050	878	1420	561	595	696

CAL YR 1984 TOTAL 8522.2 MEAN 23.3 MAX 150 MIN 7.0 CFSM 1.94 IN. 26.42 AC-FT 16900
WTR YR 1985 TOTAL 7547.4 MEAN 20.7 MAX 242 MIN 7.7 CFSM 1.72 IN. 23.40 AC-FT 14970

12120500 JUANITA CREEK NEAR KIRKLAND, WA

LOCATION.--Lat 47°42'20", long 122°12'56", in SW¼SE¼ sec.30, T.26 N., R.5 E., King County, Hydrologic Unit 17110012, on right bank 0.1 mi upstream from mouth and Lake Washington, and 1.7 mi north of Kirkland.

DRAINAGE AREA.--6.69 mi². Prior to May 3, 1972, 6.43 mi².

PERIOD OF RECORD.--June to October 1945, September 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft, from topographic map. Prior to Oct. 2, 1945, water-stage recorder at site 1,500 ft upstream at different datum. Sept. 1, 1963. to May 2, 1972, water-stage recorder and concrete control at site 1,000 ft upstream at different datum. May 3, 1972, to Oct. 27, 1972, nonrecording gage at present site and different datum.

REMARKS.--Estimated daily discharges: Nov. 1 to Jan. 13, Mar. 29 to Apr. 13, Apr. 27 to May 15, May 18-23, June 1-6, June 29. Records fair except for estimated daily discharges, which are poor due to debris and backwater conditions at the control. Retention ponds in basin may cause minor regulation. Probably several small diversions upstream from station for domestic use.

AVERAGE DISCHARGE.--20 years (water years 1964-72, 1975-85), 11.2 ft³/s, 22.73 in/yr, 8,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 326 ft³/s Oct. 6, 1981; maximum gage height, 6.75 ft Dec. 3, 1982, backwater from debris; minimum discharge, 0.58 ft³/s Sept. 13, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 145 ft³/s June 7, gage height, 3.19 ft; maximum gage height, 4.84 ft Nov. 2 (backwater from debris); minimum, 2.5 ft³/s Aug. 26, gage height, 0.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	20	11	11	6.7	6.4	6.6	6.1	5.8	4.6	6.6	3.3
2	3.3	66	9.5	9.6	7.7	6.1	6.4	5.9	5.5	4.8	4.3	3.2
3	3.4	43	8.5	8.5	5.9	6.7	10	6.9	5.4	5.1	3.5	3.3
4	4.1	21	7.9	8.1	5.3	16	7.0	10	8.8	6.1	3.3	3.3
5	3.4	11	7.5	8.2	5.8	13	6.2	11	5.4	5.8	3.2	5.0
6	3.3	9.8	7.2	8.0	9.8	9.1	5.9	6.4	23	4.6	3.2	6.0
7	3.7	8.4	18	7.7	15	7.4	5.7	5.5	102	4.4	3.7	4.0
8	4.3	9.2	67	7.4	8.9	6.6	5.6	5.3	31	4.0	3.5	5.8
9	7.8	11	20	7.0	9.0	6.3	5.5	5.1	16	4.1	5.0	10
10	36	35	15	6.8	13	6.2	5.4	8.3	12	4.2	5.9	8.5
11	11	30	12	6.6	46	6.0	7.6	5.7	9.6	3.9	3.5	4.1
12	7.0	18	20	6.6	16	5.7	5.4	5.2	7.6	3.7	3.3	3.6
13	6.0	62	13	6.6	11	5.6	5.1	9.0	6.3	3.6	3.2	4.3
14	6.1	51	33	7.0	12	5.4	4.9	16	8.0	3.6	3.1	4.2
15	5.3	16	25	7.7	9.5	5.3	4.7	6.2	5.7	3.5	3.1	3.8
16	5.1	11	17	6.9	8.0	5.3	4.6	5.3	5.6	3.5	3.0	8.2
17	5.0	9.8	12	6.6	7.4	5.2	5.0	5.0	5.6	3.6	3.0	19
18	4.7	12	8.8	6.5	7.1	5.1	11	4.9	6.4	3.5	3.0	5.5
19	4.6	12	8.2	11	11	5.0	27	4.7	6.8	3.4	3.2	4.3
20	4.4	18	8.0	16	11	5.6	15	4.7	6.5	3.4	3.3	3.8
21	4.4	12	9.8	8.9	12	8.5	8.5	4.7	6.2	3.3	3.3	3.6
22	4.4	8.6	16	7.8	12	9.0	9.5	4.6	6.2	3.4	3.0	3.4
23	6.0	34	11	7.2	8.7	26	10	4.8	6.4	3.4	3.0	3.4
24	5.6	17	8.5	6.6	18	13	22	10	5.8	3.4	3.0	3.3
25	13	9.6	8.2	6.3	9.5	8.6	17	14	5.9	3.3	2.9	3.2
26	11	8.0	8.0	6.2	8.0	7.5	15	5.8	5.6	3.3	2.8	3.2
27	4.5	32	14	5.9	7.1	14	18	5.5	5.6	3.2	2.9	3.1
28	8.6	29	9.3	5.9	6.7	8.9	9.8	5.2	5.4	3.2	2.9	3.1
29	6.5	36	17	5.7	---	19	7.4	18	5.7	3.2	3.0	3.1
30	6.3	19	32	5.6	---	13	6.5	18	5.0	3.2	5.9	3.1
31	5.4	---	19	5.6	---	7.5	---	7.4	---	3.7	4.0	---
TOTAL	207.4	679.4	481.4	235.5	308.1	273.0	278.3	235.2	340.8	120.0	110.6	145.7
MEAN	6.69	22.6	15.5	7.60	11.0	8.81	9.28	7.59	11.4	3.87	3.57	4.86
MAX	36	66	67	16	46	26	27	18	102	6.1	6.6	19
MIN	3.2	8.0	7.2	5.6	5.3	5.0	4.6	4.6	5.0	3.2	2.8	3.1
CFSM	1.00	3.38	2.32	1.14	1.64	1.32	1.39	1.13	1.70	.58	.53	.73
IN.	1.15	3.78	2.68	1.31	1.71	1.52	1.55	1.31	1.90	.67	.61	.81
AC-FT	411	1350	955	467	611	541	552	467	676	238	219	289

CAL YR 1984 TOTAL 4160.6 MEAN 11.4 MAX 67 MIN 3.2 CFSM 1.70 IN. 23.14 AC-FT 8250
WTR YR 1985 TOTAL 3415.4 MEAN 9.36 MAX 102 MIN 2.8 CFSM 1.40 IN. 18.99 AC-FT 6770

12121600 ISSAQUAH CREEK NEAR MOUTH, NEAR ISSAQUAH, WA

LOCATION.--Lat 47°33'09", long 122°02'48", in SE¼NW¼ sec.21, T.24 N., R.6 E., King County, Hydrologic Unit 17110012, on right bank 30 ft downstream from S.E. 56th Street bridge, 0.7 mi downstream from North Fork, 1.2 mi upstream from mouth, and 1.6 mi northwest of Issaquah.

DRAINAGE AREA.--56.6 mi², includes 1.9 mi² of Cedar River drainage from upper Rock Creek which normally is diverted into Issaquah Creek.

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 35.99 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-31. Records fair except for estimated daily discharges, which are poor. Many minor diversions for irrigation and domestic use upstream from station.

AVERAGE DISCHARGE.--22 years, 140 ft³/s, 33.59 in/yr, 101,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,870 ft³/s Dec. 3, 1975, gage height, 11.46 ft; maximum gage height, 11.79 ft Jan. 25, 1984; minimum, 10 ft³/s Aug. 12, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 14	2115	*460	*5.98				

Minimum recorded discharge, 20 ft³/s Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	67	231	202	73	123	207	125	76	42	35	24
2	34	228	184	175	64	113	178	112	84	41	33	24
3	35	246	149	161	58	105	203	114	75	39	32	24
4	33	214	128	157	56	148	182	105	77	38	28	24
5	37	123	113	153	57	126	167	101	68	37	28	27
6	35	87	103	146	60	114	152	95	83	36	28	32
7	36	81	117	142	76	104	138	89	341	36	29	34
8	35	78	344	132	70	96	127	84	257	36	35	37
9	39	86	274	121	68	91	120	81	180	35	32	37
10	42	126	232	112	110	87	113	81	137	33	36	35
11	39	269	184	104	225	82	117	82	114	31	32	32
12	40	166	206	99	206	79	114	73	103	32	29	30
13	50	231	181	95	156	67	105	74	93	31	27	30
14	45	225	295	96	152	63	99	104	92	30	26	30
15	40	144	346	100	180	72	94	87	105	30	25	30
16	37	109	265	96	154	68	91	78	91	29	25	31
17	36	94	220	92	136	60	83	72	78	31	25	42
18	35	104	180	89	123	60	88	68	71	30	24	32
19	34	115	156	88	127	62	117	65	64	30	24	27
20	34	182	141	138	141	70	108	56	61	29	24	26
21	36	153	135	114	149	77	100	56	57	28	25	25
22	34	122	221	101	287	89	99	49	54	26	24	24
23	33	195	221	95	243	144	111	49	54	25	24	24
24	34	190	201	89	231	150	109	45	47	26	24	23
25	39	145	179	84	200	132	125	85	45	26	23	24
26	46	120	160	80	167	117	124	61	45	27	22	25
27	54	212	197	78	144	123	186	50	44	26	22	24
28	46	323	164	77	130	113	222	50	44	25	23	22
29	41	321	189	72	---	116	170	64	44	24	23	22
30	38	327	329	69	---	212	144	112	43	25	25	22
31	43	---	248	68	---	248	---	88	---	27	26	---
TOTAL	1193	5083	6293	3425	3843	3311	3993	2455	2727	961	838	843
MEAN	38.5	169	203	110	137	107	133	79.2	90.9	31.0	27.0	28.1
MAX	54	327	346	202	287	248	222	125	341	42	36	42
MIN	33	67	103	68	56	60	83	45	43	24	22	22
CFSM	.68	2.99	3.59	1.94	2.42	1.89	2.35	1.40	1.61	.55	.48	.50
IN.	.78	3.34	4.14	2.25	2.53	2.18	2.62	1.61	1.79	.63	.55	.55
AC-FT	2370	10080	12480	6790	7620	6570	7920	4870	5410	1910	1660	1670

CAL YR 1984 TOTAL 48792 MEAN 133 MAX 1670 MIN 26 CFSM 2.35 IN. 32.07 AC-FT 96780
WTR YR 1985 TOTAL 34965 MEAN 95.8 MAX 346 MIN 22 CFSM 1.69 IN. 22.98 AC-FT 69350

12122000 SAMMAMISH LAKE NEAR REDMOND, WA

LOCATION.--Lat 47°34'47", long 122°06'38", in NE¼SW¼ sec.12, T.24 N., R.5 E., King County, Hydrologic Unit 17110012, on west shore 5.6 mi above lake outlet, and 6.5 mi south of Redmond.

DRAINAGE AREA.--99.6 mi², includes 1.9 mi² of Cedar River drainage from upper Rock Creek, which normally is diverted into Issaquah Creek.

PERIOD OF RECORD.--January 1939 to current year.

REVISED RECORDS.--WSP 1446: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 24.04 ft above National Geodetic Vertical Datum of 1929. Prior to June 22, 1942, nonrecording gage at different site at datum 1.00 ft higher. June 22, 1942, to Aug. 22, 1951, nonrecording gage at different site at datum 1.00 ft higher and Aug. 23, 1951, to Apr. 29, 1965, at present datum.

REMARKS.--Minor regulation on tributaries. Many small diversions from tributaries for irrigation and domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 9.40 ft Feb. 12, 1951 (present datum); minimum observed, 1.09 ft Aug. 25-27, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 10.83 ft, present datum, was observed on Dec. 22, 1933, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 3.27 ft Dec. 16, 17; minimum recorded, 1.20 ft Sept. 6-12, but may have been less during this period.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.47	1.74	3.06	3.04	2.21	2.56	2.44	2.46	2.12	1.95	1.48	1.30
2	1.46	1.93	3.05	3.01	2.20	2.53	2.44	2.44	2.11	1.93	1.50	1.29
3	1.46	2.09	2.99	2.97	2.19	2.50	2.44	2.45	2.11	1.91	1.49	1.29
4	1.47	2.21	2.93	2.92	2.16	2.51	2.44	2.43	2.11	1.88	1.48	1.29
5	1.47	2.24	2.88	2.88	2.15	2.51	2.44	2.42	2.11	1.86	1.47	1.28
6	1.47	2.24	2.82	2.83	2.14	2.50	2.44	2.39	2.12	1.85	1.46	1.23
7	1.49	2.24	2.77	2.81	2.15	2.48	2.44	2.37	2.42	1.83	1.44	1.20
8	1.49	2.25	2.96	2.77	2.14	2.45	2.44	2.34	2.62	1.82	1.43	---
9	1.51	2.26	3.06	2.73	2.14	2.42	2.44	2.31	2.64	1.81	1.42	---
10	1.59	2.30	3.09	2.69	2.15	2.39	2.44	2.29	2.63	1.78	1.42	---
11	1.63	---	3.08	2.64	2.29	2.37	2.43	2.27	2.60	1.77	1.42	---
12	1.63	---	3.09	2.60	2.35	2.34	2.42	2.25	2.56	1.75	1.42	---
13	1.64	---	3.07	2.55	2.43	2.31	2.39	2.23	2.52	1.72	1.41	1.35
14	1.64	2.71	3.12	2.52	2.48	2.29	2.37	2.27	2.49	1.70	1.41	1.36
15	1.64	2.76	3.22	2.50	2.54	2.26	2.33	2.27	2.47	1.69	1.40	1.39
16	1.63	2.75	3.26	2.47	2.54	2.24	2.30	2.25	2.44	1.67	1.39	1.39
17	1.62	2.71	3.26	2.44	2.54	2.22	2.28	2.23	2.40	1.66	1.39	1.46
18	1.62	2.66	3.21	2.42	2.54	2.20	2.27	2.20	2.36	1.65	1.38	1.46
19	1.61	2.67	3.15	2.40	2.54	2.18	2.30	2.19	2.32	1.64	1.37	1.47
20	1.60	2.70	3.08	2.41	2.54	2.16	2.32	2.18	2.28	1.62	1.35	1.47
21	1.60	2.70	3.07	2.41	2.54	2.17	2.30	2.15	2.24	1.61	1.35	1.47
22	1.59	2.67	---	2.39	2.54	2.20	2.28	2.14	2.20	1.59	1.34	1.46
23	1.59	2.68	---	2.38	2.54	2.24	2.32	2.12	2.16	1.57	1.33	1.46
24	1.59	2.71	---	2.36	2.55	2.29	2.33	2.10	2.13	1.56	1.33	1.46
25	1.61	2.71	---	2.33	2.60	2.31	2.33	2.12	2.10	1.54	1.33	1.46
26	1.63	2.69	---	---	2.62	2.37	2.35	2.11	2.08	1.53	1.32	1.46
27	1.64	2.78	---	---	2.60	2.33	2.45	2.09	2.06	1.51	1.32	1.45
28	1.64	2.88	---	---	2.58	2.33	2.45	2.09	2.03	1.50	1.31	1.44
29	1.65	2.97	2.89	---	---	2.36	2.47	2.11	2.09	1.49	1.30	1.43
30	1.66	3.06	3.03	---	---	2.38	2.47	2.14	1.98	1.47	1.29	1.42
31	1.68	---	3.06	---	---	2.44	---	2.13	---	1.46	1.30	---
MEAN	1.58	---	---	---	2.39	2.35	2.39	2.24	2.28	1.69	1.39	---
MAX	1.68	---	---	---	2.62	2.56	2.47	2.46	2.64	1.95	1.50	---
MIN	1.46	---	---	---	2.14	2.16	2.27	2.09	1.98	1.46	1.29	---

12122500 BEAR CREEK NEAR REDMOND, WA

LOCATION.--Lat 47°43'04", long 122°04'34", in NW¼NW¼ sec.29, T.26 N., R.6 E., King County, Hydrologic Unit 1711001., on right bank, 1.0 mi upstream from Cottage Lake Creek and 3.5 mi northeast of Redmond, and at mile 6.5.

DRAINAGE AREA.--13.9 mi².

PERIOD OF RECORD.--June 1945 to October 1949, May 1979 to September 1981; October 1981 to September 1984 (seasonal records only), October 1984 to September 1985.

REVISED RECORD.--WDR WA-79-1: Drainage area. WDR WA-84: Datum.

GAGE.--Water-stage recorder. Datum of gage is 111.0 ft above National Geodetic Vertical Datum of 1929. June 1945 to October 1949 at different datum.

REMARKS.--Estimated daily discharges: Dec. 22-27, Jan. 31 to Feb. 4, Mar. 19 to May 21. Records fair. No known diversion or regulation.

AVERAGE DISCHARGE.--7 years (water years 1946-49, 1980-81, 1985), 27.1 ft³/s, 26.48 in/yr, 19,630 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 223 ft³/s Dec. 17, 1979, gage height, 3.63 ft, maximum gage height, 3.89 ft Feb. 22, 1949 at datum then in use; minimum discharge, 3.1 ft³/s Aug. 22, 1946, gage height, 1.34 ft at datum then in use; minimum gage height, 1.00 ft Aug. 19, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 166 ft³/s June 7, gage height, 2.97 ft; minimum, 4.6 ft³/s Aug. 21, gage height, 0.77 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	21	68	44	18	28	29	23	13	7.1	7.4	7.6
2	9.4	64	49	37	18	26	26	21	13	6.8	7.4	7.2
3	9.4	47	38	34	16	24	27	20	12	6.8	7.4	6.9
4	9.4	32	32	30	14	34	26	17	13	6.7	6.6	6.8
5	9.0	23	28	29	13	32	24	21	12	6.5	7.0	8.1
6	9.6	19	25	27	14	29	22	19	15	6.3	8.0	11
7	9.8	17	30	26	21	26	21	17	127	6.6	6.4	11
8	9.8	16	94	24	21	23	21	16	120	11	5.9	12
9	11	17	88	23	19	22	20	15	67	8.6	6.3	14
10	19	31	74	22	21	21	19	14	39	7.3	7.2	13
11	19	48	57	20	46	20	19	16	27	7.1	6.6	11
12	15	35	103	20	49	19	19	14	22	7.2	5.9	9.1
13	14	48	114	20	39	19	18	16	18	7.6	6.3	8.5
14	13	60	112	20	34	19	17	27	18	7.1	5.8	8.6
15	13	38	130	21	32	18	16	20	17	6.8	5.6	9.6
16	12	28	112	21	30	17	16	17	14	6.9	5.9	10
17	12	22	85	20	27	16	15	14	13	7.0	6.0	20
18	11	22	65	20	25	16	19	13	12	7.1	5.9	15
19	11	20	48	20	25	15	26	13	12	7.0	5.5	12
20	11	26	40	30	30	15	31	12	11	7.1	5.5	11
21	11	23	36	26	30	17	25	12	9.9	7.0	6.4	9.7
22	11	19	48	23	43	18	22	11	9.5	6.8	13	9.5
23	10	48	54	22	42	27	26	10	9.2	6.5	8.0	9.1
24	10	71	49	20	43	29	25	11	10	6.1	6.7	9.0
25	14	53	44	20	42	24	33	13	9.4	6.1	6.1	8.9
26	17	37	42	20	35	21	31	11	8.6	6.2	5.9	8.4
27	16	56	52	19	31	25	34	11	7.9	6.5	5.9	8.2
28	15	92	48	19	29	23	38	12	7.5	5.6	5.7	7.9
29	18	131	52	19	---	32	30	14	7.2	5.8	5.9	7.5
30	15	103	67	18	---	36	25	22	7.0	6.2	6.3	7.7
31	15	---	54	17	---	32	---	16	---	7.0	7.9	---
TOTAL	388.3	1268	1938	731	807	723	720	488	681.2	214.4	206.4	297.9
MEAN	12.5	42.3	62.5	23.6	28.8	23.3	24.0	15.7	22.7	6.92	6.66	9.93
MAX	19	131	130	44	49	36	38	27	127	11	13	20
MIN	8.9	16	25	17	13	15	15	10	7.0	5.6	5.5	6.8
CFSM	.90	3.04	4.50	1.70	2.07	1.68	1.73	1.13	1.63	.50	.48	.71
IN.	1.04	3.39	5.19	1.96	2.16	1.93	1.93	1.31	1.82	.57	.55	.80
AC-FT	770	2520	3840	1450	1600	1430	1430	968	1350	425	409	591

WTR YR 1985 TOTAL 8463.2 MEAN 23.2 MAX 131 MIN 5.5 CFSM 1.67 IN. 22.65 AC-FT 16790

12125200 SAMMAMISH RIVER NEAR WOODINVILLE, WA

LOCATION.--Lat 47°42'15", long 122°08'29", in SW¼SW¼ sec.26, T.26 N., R.5 E., King County, Hydrologic Unit 17110012, on right bank 3.9 mi upstream from Bear Creek, 3.6 mi southeast of Woodinville, and at mile 10.8.

DRAINAGE AREA.--159 mi², includes 1.9 mi² of Cudar River drainage from upper Rock Creek which is normally diverted into Issaquah Creek.

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to July 7, 1970, auxiliary water-stage recorder 2 mi downstream from base gage at same datum.

REMARKS.--Estimated daily discharges: Sept. 20-30. Records fair except for flows below 100 ft³/s, which are poor. Some regulation at Sammamish Lake. Many small diversions for irrigation and domestic use.

AVERAGE DISCHARGE.--20 years, 325 ft³/s, 27.76 in/yr, 235,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,390 ft³/s Mar. 6, 1972, elevation, 25.83 ft; minimum daily, 25 ft³/s Aug. 2, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 932 ft³/s Dec. 15, elevation, 20.20 ft; minimum daily discharge, 60 ft³/s Aug. 25-31, Sept. 1, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	132	628	574	231	365	334	317	176	117	78	60
2	66	337	567	548	230	346	325	305	167	112	77	61
3	68	326	517	517	219	326	336	303	160	109	74	61
4	68	298	480	489	205	368	338	285	172	106	74	60
5	67	260	446	467	195	374	329	278	157	104	71	61
6	66	240	418	454	196	355	320	257	182	101	70	61
7	68	233	419	437	227	335	310	241	689	100	70	63
8	67	223	681	419	222	321	311	224	754	99	69	65
9	73	236	688	397	215	309	303	210	622	98	68	69
10	119	294	661	375	237	297	298	200	538	96	71	66
11	123	391	609	361	369	285	301	205	454	94	68	66
12	106	371	704	347	385	278	305	179	394	92	66	66
13	101	443	751	337	366	270	292	177	364	91	65	67
14	97	528	755	335	357	262	275	233	360	90	64	66
15	92	466	895	329	359	254	270	206	345	89	64	66
16	88	420	852	319	350	241	266	192	319	87	62	67
17	85	388	776	318	334	232	261	182	297	87	62	81
18	83	377	694	310	320	224	266	171	278	85	62	72
19	82	365	626	294	326	217	299	153	261	84	62	68
20	78	394	578	335	352	213	313	145	242	82	61	66
21	76	388	547	315	348	218	294	144	224	82	61	65
22	75	364	576	290	383	224	278	142	207	80	61	65
23	75	469	594	277	387	275	294	136	192	80	61	64
24	82	561	569	269	408	294	296	142	181	79	61	64
25	85	474	540	256	405	282	330	161	167	77	60	63
26	106	424	521	246	390	286	323	148	156	75	60	63
27	109	516	561	234	380	299	346	143	146	76	60	63
28	99	620	541	240	374	294	371	145	138	76	60	62
29	104	722	540	251	---	324	342	177	138	75	60	62
30	101	713	662	241	---	337	325	233	126	76	60	62
31	103	---	615	232	---	338	---	189	---	75	60	---
TOTAL	2678	11973	19011	10813	8770	9043	9251	6223	8606	2775	2022	1945
MEAN	86.4	399	613	349	313	292	308	201	287	89.5	65.2	64.8
MAX	123	722	895	574	408	374	371	317	754	117	78	81
MIN	66	132	418	232	195	213	261	136	126	75	60	60
CFSM	.54	2.51	3.86	2.19	1.97	1.84	1.94	1.26	1.81	.56	.41	.41
IN.	.63	2.80	4.45	2.53	2.05	2.12	2.16	1.46	2.01	.65	.47	.46
AC-FT	5310	23750	37710	21450	17400	17940	18350	12340	17070	5500	4010	3860

CAL YR 1984 TOTAL 120704 MEAN 330 MAX 895 MIN 55 CFSM 2.08 IN. 28.24 AC-FT 239400
WTR YR 1985 TOTAL 93110 MEAN 255 MAX 895 MIN 60 CFSM 1.60 IN. 21.78 AC-FT 184700

12127100 SWAMP CREEK AT KENMORE, WA

LOCATION.--Lat 47°45'22", long 122°13'57", in NE¼ sec.12, T.26 N., R.4 E., King County, Hydrologic Unit 17110012, on right bank on upstream side of Bothell Way bridge (State Highway 522) at Kenmore, and at mile 0.5.

DRAINAGE AREA.--23.1 mi^2.

PERIOD OF RECORD.--October 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WDR WA-84-1: 1983(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 14.46 ft above National Geodetic Vertical Datum of 1929 (Washington State Highway Department). Apr. 27 to Sept. 7, 1967, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Some minor diversion for domestic use upstream from station. Peak flows are affected by flood control storage and urbanization.

AVERAGE DISCHARGE.--20 years (water years 1964-72, 1975-85), 34.8 ft^3/s, 20.46 in/yr, 25,210 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 651 ft^3/s, revised, Jan. 5, 1983, gage height, 6.12 ft; minimum, 2.3 ft^3/s Aug. 12, 1977; minimum gage height, 1.71 ft July 31, Aug. 1, 2, 1965, Aug. 12, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 23	2015	*478	*5.39	Dec. 15	0145	416	5.08
Nov. 27	2100	308	4.54	June 7	2315	287	4.43

Minimum discharge, 2.9 ft^3/s Aug. 30, gage height, 1.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	54	91	42	16	28	32	24	15	7.7	11	6.4
2	8.1	186	68	34	20	25	29	23	14	7.9	8.4	5.8
3	8.2	63	52	30	17	24	39	30	14	7.5	7.4	6.5
4	8.2	54	43	28	16	51	39	27	14	7.8	6.5	8.2
5	8.2	29	36	28	16	37	30	29	12	7.7	6.2	9.8
6	8.1	25	31	28	18	32	27	23	20	7.1	5.9	20
7	8.7	22	36	27	42	28	26	20	195	7.5	13	9.2
8	9.0	21	175	26	27	24	26	18	162	7.2	29	8.2
9	9.3	34	110	24	25	23	23	16	68	7.2	9.1	17
10	45	83	88	22	34	21	21	17	42	6.7	8.1	13
11	32	80	68	21	138	20	25	20	28	6.7	6.7	8.8
12	17	62	149	20	97	19	22	16	22	7.0	6.3	7.4
13	15	79	148	20	63	18	19	22	18	6.2	6.0	8.0
14	14	67	174	24	53	18	18	50	18	6.8	5.9	15
15	12	40	286	24	45	18	18	23	15	7.7	5.7	9.7
16	11	30	170	22	38	17	18	18	13	6.0	5.6	14
17	11	29	118	21	33	17	16	15	12	6.2	5.5	34
18	10	42	80	21	29	16	17	14	11	6.5	5.6	12
19	10	29	59	22	35	16	43	13	10	5.8	5.6	9.1
20	9.8	31	48	53	45	16	34	13	9.6	5.6	5.8	8.2
21	9.5	28	42	32	44	21	27	12	9.1	5.7	6.1	8.0
22	9.4	24	48	27	62	31	26	11	8.8	5.9	5.8	7.4
23	10	197	50	24	50	71	40	11	9.3	6.1	5.8	7.2
24	11	206	46	22	53	52	46	11	10	6.0	5.8	7.2
25	18	85	41	21	44	34	51	12	9.1	6.0	5.5	7.1
26	22	57	51	19	37	28	49	11	8.6	7.3	5.4	6.9
27	16	197	77	18	32	46	60	11	8.7	5.7	5.5	6.7
28	13	217	62	18	29	32	51	10	8.3	5.6	5.6	6.4
29	15	182	66	18	---	34	34	21	8.2	6.9	5.3	6.2
30	14	154	99	16	---	40	28	55	6.1	5.8	6.9	6.5
31	16	---	57	16	---	41	---	21	---	6.8	9.0	---
TOTAL	416.6	2407	2669	768	1158	898	934	617	800.8	206.6	230.0	299.9
MEAN	13.4	80.2	86.1	24.8	41.4	29.0	31.1	19.9	26.7	6.66	7.42	10.0
MAX	45	217	286	53	138	71	60	55	195	7.9	29	34
MIN	8.1	21	31	16	16	16	16	10	8.1	5.6	5.3	5.8
CFSM	.58	3.47	3.73	1.07	1.79	1.26	1.35	.86	1.16	.29	.32	.43
IN.	.67	3.88	4.30	1.24	1.86	1.45	1.50	.99	1.29	.33	.37	.48
AC-FT	826	4770	5290	1520	2300	1780	1850	1220	1590	410	456	595

CAL YR 1984 TOTAL 14658.8 MEAN 40.1 MAX 286 MIN 5.5 CFSM 1.74 IN. 23.61 AC-FT 29080
WTR YR 1985 TOTAL 11404.9 MEAN 31.2 MAX 286 MIN 5.3 CFSM 1.35 IN. 18.37 AC-FT 22620

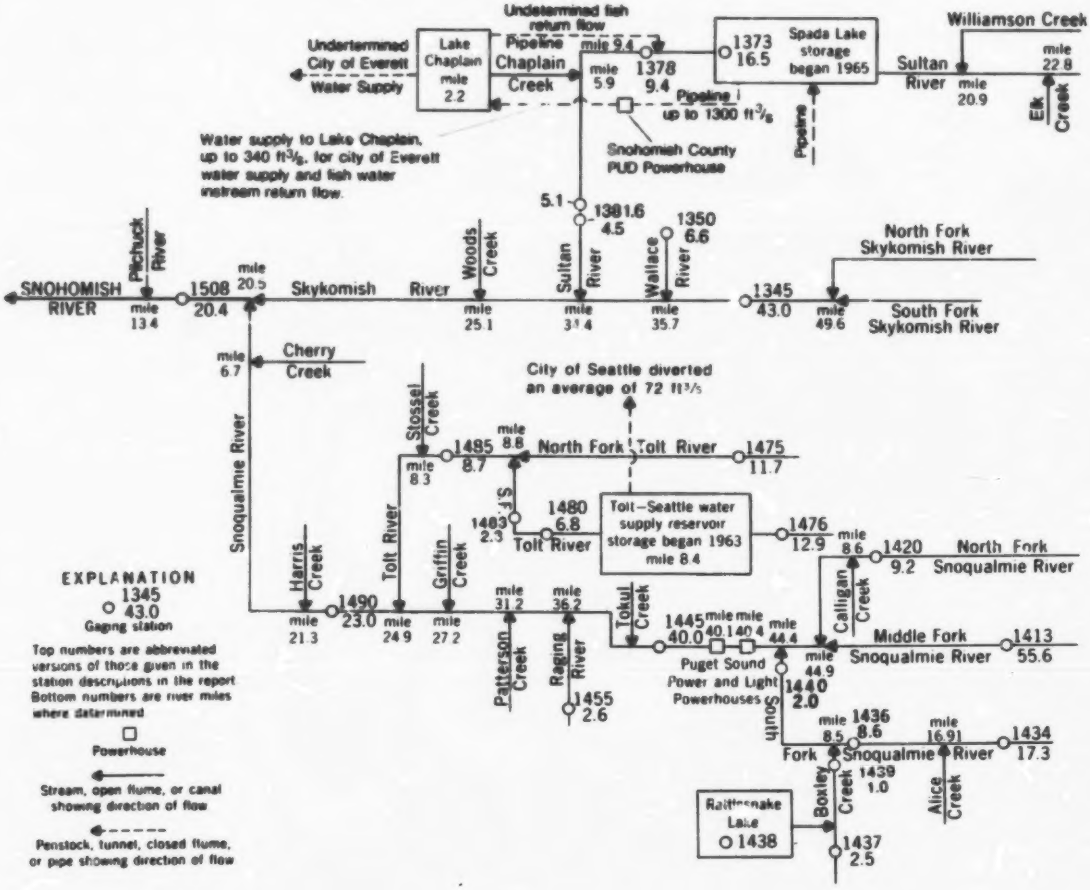
Undetermined fish return flow
Undertermined City of Everett Water Supply
Lake Chaplain mile 2.2
Pipeline
Chaplain Creek
mile 9.4
mile 5.9
1378 9.4
1373 16.5
Spada Lake storage began 1965
Williamson Creek
Sultan River
mile 20.9
mile 22.8
Elk Creek
Pipeline
Pipeline up to 1300 ft³/s
Snohomish County PUD Powerhouse
Water supply to Lake Chaplain, up to 340 ft³/s, for city of Everett water supply and fish water instream return flow.
5.1
1381.6
4.5
1350 6.6
Pilchuck River
SNOHOMISH RIVER
mile 13.4
1508 20.4
mile 20.5
Skykomish River
Woods Creek
mile 25.1
Sultan River
mile 34.4
Wallace River
mile 35.7
1345 43.0
North Fork Skykomish River
mile 49.6
South Fork Skykomish River
mile 6.7
Cherry Creek
City of Seattle diverted an average of 72 ft³/s
Snoqualmie River
Stossel Creek
mile 8.3
1485 8.7
mile 8.8
North Fork Tolt River
1475 11.7
S.F.
1483 2.3
1480 6.8
Tolt River
Tolt–Seattle water supply reservoir storage began 1963 mile 8.4
1476 12.9
mile 8.6
1420 9.2
North Fork Snoqualmie River
Calligan Creek
Harris Creek
Tolt River
Griffin Creek
mile 21.3
1490 23.0
mile 24.9
mile 27.2
mile 31.2
mile 36.2
Patterson Creek
Raging River
1455 2.6
Tokul Creek
1445 40.0
mile 40.1
mile 40.4
mile 44.4
mile 44.9
Middle Fork Snoqualmie River
1413 55.6
Puget Sound Power and Light Powerhouses
1440 2.0
South Fork Snoqualmie River
mile 8.5
1436 8.6
mile 16.91
1434 17.3
1439 1.0
Boxley Creek
Alice Creek
Rattlesnake Lake 1438
1437 2.5
EXPLANATION
1345 43.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined
Powerhouse
Stream, open flume, or canal showing direction of flow
Penstock, tunnel, closed flume, or pipe showing direction of flow

Figure 15.--Gaging stations in Snohomish River basin.

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12134500 SKYKOMISH RIVER NEAR GOLD BAR, WA

LOCATION.--Lat 47°50'15", long 121°39'56", in SW¼SW¼ sec.9, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank 2.0 mi southeast of Gold Bar, 7.3 mi upstream from Wallace River, and at mile 43.0.

DRAINAGE AREA.--535 mi².

PERIOD OF RECORD.--September 1928 to current year.

REVISED RECORDS.--WSP 1316: 1932-35(M), 1944(M).

GAGE.--Water-stage recorder. Datum of gage is 209.26 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: June 10-12. Records good. No regulation. Several small diversions upstream from station. Chemical analyses July 1959 to September 1970, October 1977 to June 1980.

AVERAGE DISCHARGE.--57 years, 3,953 ft³/s, 100.34 in/yr, 2,864,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,400 ft³/s Dec. 26, 1980, gage height, 21.38 ft, from rating curve extended above 53,000 ft³/s; minimum, 315 ft³/s Nov. 29, 1952; minimum gage height, 2.73 ft Dec. 1, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 19,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1500	*23,800	*12.09	No other peak greater than base discharge.			

Minimum discharge, 578 ft³/s Aug. 30, gage height, 3.45 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	753	2110	2620	1490	1180	1950	6140	5380	7840	3630	1230	646
2	729	3170	2210	1430	1130	1810	6360	7360	7010	4100	1140	666
3	714	8200	1930	1380	1030	1670	7060	8740	6820	4530	1080	636
4	748	8550	1720	1350	946	1590	5230	7140	9220	4440	1040	609
5	877	5920	1590	1310	1050	1500	4170	5860	8080	4120	1000	995
6	801	4390	1500	1290	1020	1410	3790	5030	7240	3430	946	5980
7	762	5420	1910	1280	990	1340	3940	4590	19200	3220	926	3240
8	759	4280	6550	1270	945	1280	4500	4230	16000	3350	1110	1820
9	1040	3640	4790	1240	911	1250	6290	3880	9690	3510	1060	1390
10	1250	3360	3390	1200	933	1250	8060	4010	8830	3370	1040	1260
11	1560	6050	2710	1160	1240	1250	9240	3940	8600	3020	958	1170
12	1990	5170	2410	1130	1380	1260	11000	3450	8850	2780	899	1060
13	4440	4780	2150	1100	1180	1260	9170	3260	8450	2510	864	1000
14	3570	5010	3590	1110	1160	1270	8830	3600	8830	2300	837	976
15	2600	3770	4720	1490	1450	1300	8600	3740	9420	2240	816	956
16	2020	3100	3250	1440	1390	1370	10100	6320	7590	2130	787	998
17	1690	2660	2650	1580	1260	1580	7970	10000	7210	2040	764	2960
18	1470	2660	2220	2060	1180	1790	6330	11500	8420	2000	746	1980
19	1320	3690	1980	2280	1200	1920	5090	10600	9120	1910	729	1480
20	1210	4130	1850	2470	1300	1980	4220	9070	8220	1840	708	1240
21	1130	3360	1780	2410	1280	2020	3590	8230	6950	1750	688	1110
22	1060	2790	2270	2190	1810	1910	3270	10200	6430	1660	662	1010
23	1020	2780	4330	2000	2190	1970	3500	12000	5610	1590	643	932
24	1010	2890	3420	1850	3660	1960	3550	12100	4370	1500	638	875
25	5520	2550	2660	1710	3690	1770	3320	10700	3810	1420	636	819
26	5040	2290	2400	1600	2710	1620	3180	9030	4200	1330	634	775
27	3480	2250	2200	1510	2240	1560	8350	8350	4560	1260	623	742
28	3240	2700	1970	1440	2020	1460	10300	7410	4190	1200	608	701
29	2730	3680	1890	1370	---	1400	6720	6620	4180	1180	596	670
30	2630	3070	1790	1270	---	2470	5420	7270	3830	1180	581	647
31	2460	---	1620	1230	---	2340	---	6860	---	1220	651	---
TOTAL	59673	118420	82070	47640	42475	53510	187290	220470	232770	75760	25640	39343
MEAN	1925	3947	2647	1537	1517	1726	6243	7112	7759	2444	827	1311
MAX	5520	8550	6550	2470	3690	2340	11000	12100	19200	4530	1230	5980
MIN	714	2110	1500	1100	911	1250	3180	3260	3810	1180	581	609
CFSM	3.60	7.38	4.95	2.87	2.84	3.23	11.7	13.3	14.5	4.57	1.55	2.45
IN.	4.15	8.23	5.71	3.31	2.95	3.72	13.02	15.33	16.19	5.27	1.78	2.74
AC-FT	118400	234900	162800	94490	84250	106100	371500	437300	461700	150300	50860	78040

CAL YR 1984 TOTAL 1389789 MEAN 3797 MAX 34200 MIN 714 CFSM 7.10 IN. 96.64 AC-FT 2757000
WTR YR 1985 TOTAL 1185061 MEAN 3247 MAX 19200 MIN 581 CFSM 6.07 IN. 82.40 AC-FT 2351000

0166

12135000 WALLACE RIVER AT GOLD BAR, WA

LOCATION.--Lat 47°51'51", long 122°40'53", in NE¼NW¼ sec.5, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on left bank at downstream side of highway bridge, 1.0 mi north of Gold Bar, 2.1 mi upstream from Olney Creek, and at mile 6.6.

DRAINAGE AREA.--18.6 mi^2.

PERIOD OF RECORD.--October 1928 to September 1933, July 1946 to November 1976, August 1977 to June 1978, July 1980 to current year (seasonal records only). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1316: 1930(M), 1932-33(M). WSP 1932: Drainage area. WDR WA-74-1: 1971-73(P). WDR WA-80-1: Drainage area. WDR WA-83-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 203.00 ft above National Geodetic Vertical Datum of 1929. December 1928 to Sept. 20, 1933, nonrecording gage 0.8 mi downstream at different datum. July 25, 1946, to June 30, 1978, water-stage recorder 0.8 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow affected by natural storage in Wallace Lake. No diversions upstream from station. Water temperatures July 1955 to September 1972.

AVERAGE DISCHARGE.--35 years (water years 1929-33, 1947-76), 165 ft^3/s, 117.93 in/yr, 119,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,400 ft^3/s Jan. 5, 1969, gage height, 8.37 ft, site and datum then in use; minimum, 5.8 ft^3/s Aug. 25, 29, 30, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge for period June to October, 1,360 ft^3/s Oct. 24, gage height, 4.81 ft; minimum, 13 ft^3/s Aug. 29, 30, gage height, 0.88 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1985
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	266	80	22	18	26
2	224	105	23	25	32
3	218	93	22	18	51
4	306	89	20	16	33
5	248	77	19	187	29
6	238	65	18	381	38
7	716	64	19	148	73
8	510	67	74	95	39
9	301	68	48	71	33
10	242	62	41	61	29
11	227	54	28	51	135
12	226	49	25	47	120
13	196	44	22	46	79
14	296	40	21	43	301
15	240	41	20	47	357
16	187	39	18	182	336
17	188	36	18	328	176
18	204	36	17	138	136
19	196	34	17	96	138
20	167	33	16	77	175
21	147	31	16	68	128
22	132	28	15	59	186
23	111	27	15	52	183
24	90	25	15	46	564
25	85	24	14	42	599
26	102	23	14	38	494
27	100	22	14	35	428
28	83	21	14	32	306
29	88	21	13	29	188
30	76	21	14	28	165
31	---	21	25	---	142
TOTAL	6410	1440	677	2504	5719
MEAN	214	46.5	21.8	83.5	184
MAX	716	105	74	381	599
MIN	76	21	13	16	26
CFSM	11.3	2.45	1.15	4.39	9.68
IN.	12.55	2.82	1.33	4.90	11.20
AC-FT	12710	2860	1340	4970	11340

12137300 SPADA LAKE NEAR STARTUP, WA

LOCATION.--Lat 47°58'28", long 121°41'10", in NW¼ sec.29, T.29 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, Snoqualmie National Forest, on right bank at Culmback Dam on Sultan River, 1.7 mi downstream from South Fork, 7.8 mi north of Startup, and at mile 16.5.

DRAINAGE AREA.--68.3 mi².

PERIOD OF RECORD.--April 1965 to current year.

REVISED RECORDS.--WDR WA-79-1: 1975-76(M).

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Snohomish County P.U.D. No. 1).

REMARKS.--Reservoir is formed by earthfill dam originally completed to elevation 1,408 ft in 1965. Storage began April 5, 1965 for water supply for the city of Everett. During 1983 the dam was raised to elevation 1,470 ft with storage beginning November 1983. Capacity was increased to 153,260 acre-feet at elevation 1,450 ft, crest of spillway. Normal operating pool is between elevations 1,420 ft and 1,460 ft. Figures given herein represent total contents. Spada Lake is used to provide water for the city of Everett, and since June 1, 1984, power generation for Snohomish County Public Utility District No. 1. Midnight elevations for last day of each month are interpolated by using the change between observed 0900 hours daily elevation on the last day of the month and the first day of the next month through March 31, 1984; subsequently, midnight elevations are shown.

COOPERATION.--Elevation at 1200 and 2400 hours and capacity table furnished by Snohomish County Public Utility District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 158,734 acre-ft Jan. 25, 1984, elevation, 1,452.8 ft; minimum observed since reservoir was first filled, 4,250 acre-ft Sept. 30, 1967, elevation, 1,301.28 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 154,629 acre-ft June 9, elevation, 1,450.7 ft; minimum observed, 112,962 acre-ft Oct. 8, elevation, 1,426.8 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,428.6	115,804	—
Oct. 31	1,435.3	127,034	+11,230
Nov. 30	1,428.4	115,489	-11,545
Dec. 31	1,429.3	116,910	+1,421
CAL YEAR 1984	—	—	+32,727
Jan. 31	1,428.8	116,120	-790
Feb. 28	1,432.4	122,099	+5,979
Mar. 31	1,434.3	125,332	+3,233
Apr. 30	1,440.7	136,306	+10,974
May 31	1,444.3	142,869	+6,563
June 30	1,446.6	147,062	+4,193
July 31	1,437.7	131,117	-15,945
Aug. 31	1,432.1	121,588	-9,529
Sept. 30	1,437.3	130,437	+8,849
WTR YR 1985	—	—	+14,633

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA

LOCATION.--Lat 47°57'34", long 121°47'46", in SE¼NE¼ sec.32, T.29 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank 300 ft downstream from city of Everett diversion dam on Sultan River, 6.8 mi north of Sultan, and at mile 9.4.

DRAINAGE AREA.--77.1 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 660 ft from topographic map.

REMARKS.--No estimated daily discharges. Records good. During water years 1983 to 1984, the city of Everett diverted about 91 ft³/s daily into Lake Chaplain for municipal use. Flow regulated at Spada Lake (station 12137300) since Apr. 5, 1965, unadjusted for storage. Since May 1984, water is diverted at Spada Lake through a 10-ft diameter pipeline for power generation at the Jackson Project. Since July 1984, undetermined flows are returned to river at diversion dam by pipeline from Lake Chaplain for maintenance of instream flow requirements.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,320 ft³/s Jan. 25, gage height, 10.15 ft; minimum daily, 35 ft³/s Aug. 23-25, 1983.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 942 ft³/s May 30, gage height, 6.02 ft; minimum, 96 ft³/s July 18, 19, 23, 31, gage height, 3.93 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	154	140	120	171	185	494	208	183	120	148	158
2	159	267	120	118	179	186	213	211	182	115	164	160
3	159	192	112	121	176	182	217	228	181	115	164	165
4	162	164	113	124	179	183	220	245	193	116	163	171
5	164	131	108	125	177	180	214	229	187	115	163	188
6	164	126	108	126	164	181	208	212	198	122	158	222
7	163	117	133	132	149	180	211	207	445	121	176	186
8	162	120	262	129	147	181	209	209	326	123	183	185
9	172	149	152	123	146	184	209	212	313	122	170	180
10	193	147	129	119	147	183	219	218	186	123	166	177
11	198	181	130	117	167	188	224	211	180	121	160	177
12	191	146	124	114	174	186	210	211	177	124	162	175
13	212	166	118	112	160	184	210	211	178	120	166	191
14	209	157	256	146	163	179	206	225	190	119	170	207
15	196	133	201	191	172	180	207	204	181	121	162	209
16	184	122	155	158	161	180	225	204	118	110	161	248
17	178	115	142	157	155	182	220	205	112	101	160	306
18	176	152	129	169	151	184	254	209	115	101	161	226
19	170	177	129	162	160	164	231	211	114	107	161	206
20	165	191	117	207	177	194	216	203	113	112	159	186
21	159	131	116	181	236	186	212	206	115	113	159	178
22	168	125	261	167	266	182	222	206	118	111	159	177
23	167	171	324	158	192	201	234	203	116	104	160	180
24	168	179	205	150	237	180	216	205	113	104	160	187
25	204	154	162	149	175	178	211	212	113	104	160	187
26	220	152	156	148	172	176	228	211	112	106	159	185
27	185	132	146	149	173	182	284	207	114	105	159	184
28	237	268	133	148	174	178	218	207	118	104	159	184
29	183	250	129	141	---	183	207	212	119	105	159	184
30	194	187	131	148	---	459	211	277	119	102	160	184
31	182	---	125	151	---	634	---	185	---	107	159	---
TOTAL	5603	4856	4766	4460	4900	6405	6860	6604	5029	3493	5030	5753
MEAN	181	162	154	144	175	207	229	213	168	113	162	192
MAX	237	268	324	207	266	634	494	277	445	124	183	306
MIN	159	115	108	112	146	176	206	185	112	101	148	158
AC-FT	11110	9630	9450	8850	9720	12700	13610	13100	9980	6930	9980	11410

CAL YR 1984	TOTAL	136917	MEAN	374	MAX	6870	MIN	101	AC-FT	271600
WTR YR 1985	TOTAL	63759	MEAN	175	MAX	634	MIN	101	AC-FT	126500

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1984 to current year.

INSTRUMENTATION.--Temperature recorder since July 1984.

REMARKS.--Daily record of water temperatures for Oct. 17 to Dec. 11, and Aug. 3-12 were not published due to clock stoppage.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 16.0°C July 3, 1985; minimum, 1.5°C Dec. 20, 1984, Jan. 3, 4, Feb. 21, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 16.0°C July 3; minimum recorded, 1.5°C Dec. 20, Jan. 3, 4, Feb. 21.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.5	10.5	11.0				---	---	---	3.0	2.0	2.5
2	11.0	11.0	11.0				---	---	---	2.0	2.0	2.0
3	11.5	11.0	11.0				---	---	---	2.0	1.5	2.0
4	11.5	11.0	11.5				---	---	---	2.0	1.5	2.0
5	11.5	11.0	11.5				---	---	---	2.5	2.0	2.5
6	11.5	11.0	11.0				---	---	---	2.5	2.0	2.5
7	11.5	11.0	11.5				---	---	---	2.5	2.5	2.5
8	11.5	11.5	11.5				---	---	---	2.5	2.5	2.5
9	12.0	11.5	11.5				---	---	---	2.5	2.0	2.0
10	12.0	11.5	11.5				---	---	---	2.0	2.0	2.0
11	11.5	11.0	11.5				4.0	4.0	4.0	2.0	2.0	2.0
12	12.0	10.5	11.5				4.0	3.0	3.5	2.5	2.0	2.0
13	10.5	9.5	10.5				4.0	3.5	4.0	2.5	2.0	2.5
14	10.5	10.0	10.0				4.0	3.5	4.0	2.5	2.5	2.5
15	10.0	9.5	10.0				4.0	3.5	3.5	3.0	2.5	3.0
16	10.0	9.5	9.5				3.5	3.5	3.5	3.0	2.5	2.5
17	---	---	---				3.5	3.0	3.5	3.0	2.5	2.5
18	---	---	---				3.0	2.5	2.5	3.0	2.5	3.0
19	---	---	---				2.5	2.0	2.0	3.0	2.5	3.0
20	---	---	---				2.0	1.5	2.0	3.0	3.0	3.0
21	---	---	---				2.5	2.0	2.5	3.0	2.5	3.0
22	---	---	---				3.5	2.0	2.5	2.5	2.5	2.5
23	---	---	---				3.5	3.0	3.5	2.5	2.5	2.5
24	---	---	---				3.5	3.5	3.5	2.5	2.5	2.5
25	---	---	---				3.5	3.0	3.0	2.5	2.0	2.5
26	---	---	---				3.5	3.0	3.0	2.5	2.0	2.0
27	---	---	---				3.0	2.5	3.0	2.5	2.0	2.5
28	---	---	---				3.0	3.0	3.0	2.5	2.5	2.5
29	---	---	---				3.0	3.0	3.0	2.5	2.5	2.5
30	---	---	---				3.0	2.5	3.0	2.5	2.0	2.5
31	---	---	---				3.0	2.5	3.0	2.5	2.5	2.5
MONTH	---	---	---				---	---	---	3.0	1.5	2.5

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	2.5	2.5	3.5	3.0	3.0	5.5	4.0	4.5	6.5	5.5	6.0
2	2.5	2.5	2.5	3.0	2.5	3.0	5.0	4.5	4.5	6.5	6.0	6.5
3	2.5	2.5	2.5	3.0	2.5	3.0	4.5	4.0	4.5	6.5	6.0	6.0
4	2.5	2.0	2.5	3.0	3.0	3.0	4.5	4.0	4.0	6.0	5.5	6.0
5	2.5	2.0	2.5	3.0	3.0	3.0	5.0	4.0	4.5	6.5	5.5	6.0
6	2.5	2.0	2.0	3.0	3.0	3.0	5.0	4.0	4.5	6.5	6.0	6.5
7	2.5	2.0	2.0	3.0	3.0	3.0	5.0	4.5	4.5	6.5	5.5	6.0
8	2.5	2.0	2.5	3.0	2.5	3.0	5.5	4.5	5.0	7.0	6.0	6.0
9	2.5	2.0	2.5	3.5	3.0	3.0	6.0	4.5	5.0	7.0	5.5	6.5
10	2.5	2.5	2.5	3.5	3.0	3.0	5.5	5.0	5.0	6.0	5.5	6.0
11	2.5	2.0	2.5	3.5	3.0	3.0	5.5	5.0	5.5	6.0	5.5	5.5
12	2.5	2.0	2.5	3.5	3.0	3.0	6.0	5.0	5.5	6.5	6.0	6.0
13	2.5	2.5	2.5	3.5	3.0	3.0	6.0	5.0	5.5	6.0	5.5	6.0
14	2.5	2.5	2.5	3.5	3.0	3.5	5.5	5.5	5.5	6.5	6.0	6.0
15	3.0	2.5	2.5	3.5	3.0	3.5	5.5	5.0	5.5	7.5	5.5	6.5
16	3.0	2.5	2.5	3.5	3.0	3.5	6.0	5.5	5.5	8.0	6.5	7.5
17	3.0	2.5	2.5	4.0	3.5	3.5	6.0	5.5	5.5	8.0	6.5	7.0
18	3.0	2.5	2.5	4.0	3.5	3.5	5.5	5.0	5.5	8.5	7.0	7.5
19	2.5	2.5	2.5	4.0	3.5	4.0	5.0	4.5	5.0	8.0	7.0	7.0
20	2.5	2.5	2.5	4.0	4.0	4.0	5.0	4.0	4.5	7.0	6.5	7.0
21	2.5	1.5	2.5	4.0	3.5	3.5	5.5	4.0	5.0	8.0	7.0	7.5
22	3.0	2.5	3.0	3.5	3.5	3.5	5.5	4.5	5.0	8.0	6.5	7.5
23	3.0	3.0	3.0	3.5	3.0	3.5	5.0	4.5	5.0	8.0	7.0	7.5
24	3.5	3.0	3.5	3.5	3.0	3.5	4.5	4.5	4.5	8.0	7.0	7.5
25	3.5	3.0	3.5	3.5	3.0	3.5	5.0	4.0	4.5	7.5	7.0	7.5
26	3.0	3.0	3.0	3.5	3.0	3.5	5.0	4.5	5.0	7.5	7.0	7.5
27	3.0	2.5	3.0	3.5	3.5	3.5	5.5	5.0	5.0	7.5	7.0	7.5
28	3.0	3.0	3.0	4.0	3.5	3.5	6.0	4.5	5.5	8.0	6.5	7.0
29	---	---	---	4.0	3.5	3.5	6.5	5.0	5.5	8.0	7.0	7.5
30	---	---	---	3.5	3.5	3.5	6.5	5.5	6.0	9.0	6.5	7.5
31	---	---	---	4.0	3.5	4.0	---	---	---	8.0	6.0	7.0
MONTH	3.5	1.5	2.5	4.0	2.5	3.5	6.5	4.0	5.0	9.0	5.5	6.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.5	7.5	8.0	10.0	8.5	9.0	13.5	8.0	10.0	8.5	7.0	7.5
2	7.5	7.0	7.5	11.0	9.0	10.0	8.0	7.5	7.5	8.5	7.0	7.5
3	8.0	7.5	7.5	16.0	9.0	10.5	---	---	---	9.0	7.0	7.5
4	8.5	7.5	8.5	10.5	9.5	10.5	---	---	---	8.0	7.0	7.5
5	8.5	7.5	8.0	10.5	9.5	10.0	---	---	---	8.0	7.5	8.0
6	8.5	7.5	8.0	10.0	8.5	9.5	---	---	---	8.5	8.0	8.0
7	9.5	8.5	9.0	10.0	9.0	9.5	---	---	---	9.0	7.0	8.0
8	10.5	8.0	9.5	11.5	9.0	10.0	---	---	---	8.0	7.5	7.5
9	12.5	9.5	11.0	11.5	10.0	11.0	---	---	---	8.5	7.5	8.0
10	11.0	8.0	9.5	12.0	10.0	11.0	---	---	---	9.0	7.5	8.0
11	9.5	8.0	8.5	11.5	10.5	11.0	---	---	---	8.5	7.5	8.0
12	9.5	8.5	8.5	11.5	10.0	11.0	9.5	7.5	8.5	8.0	7.5	8.0
13	9.0	8.0	8.5	11.5	10.0	11.0	9.0	7.0	7.5	8.5	7.5	7.5
14	8.5	8.0	8.5	11.5	10.0	11.0	9.0	6.5	7.5	8.0	7.5	7.5
15	9.5	8.0	9.0	12.0	10.0	11.0	9.0	6.5	7.5	8.0	7.5	7.5
16	11.0	8.5	9.5	12.5	10.5	11.5	9.0	6.5	7.5	8.5	7.5	7.5
17	11.5	9.0	10.0	12.5	10.5	12.0	9.0	6.5	7.5	9.0	8.0	8.5
18	11.5	9.5	10.5	13.0	10.5	12.0	9.0	7.0	7.5	8.5	7.5	8.0
19	11.5	10.0	11.0	13.0	10.5	12.0	7.5	7.0	7.0	8.5	7.5	8.0
20	11.0	10.0	11.0	12.5	11.0	12.0	7.0	6.5	7.0	8.5	7.0	8.0
21	11.0	10.0	10.5	12.0	11.0	11.5	8.5	6.5	7.5	8.5	7.5	8.0
22	11.0	10.0	10.5	12.5	10.5	12.0	9.0	6.5	7.5	8.5	7.0	7.5
23	10.0	9.0	9.5	12.5	10.5	11.5	9.0	7.0	7.5	8.5	7.0	7.5
24	9.0	9.0	9.0	12.5	10.5	11.5	8.5	7.0	7.5	8.5	7.5	8.0
25	10.0	8.5	9.5	12.0	10.5	11.5	9.0	7.0	8.0	8.5	7.0	8.0
26	10.5	9.5	10.0	12.5	10.5	12.0	8.5	7.0	7.5	8.5	7.5	8.0
27	10.0	9.0	9.5	12.5	11.0	12.0	8.5	7.0	7.5	8.0	7.0	7.5
28	10.5	9.0	9.5	12.5	11.0	12.0	8.5	7.0	7.5	8.0	7.0	7.5
29	9.5	9.0	9.0	13.0	11.0	12.0	9.0	6.5	7.5	8.0	6.5	7.0
30	9.5	8.5	9.0	12.5	11.0	12.0	7.5	7.0	7.5	8.0	6.5	7.5
31	---	---	---	11.5	10.5	11.0	8.5	7.0	7.5	---	---	---
MONTH	12.5	7.0	9.5	16.0	8.5	11.0	---	---	---	9.0	6.5	8.0

12138160 SULTAN RIVER BELOW POWERPLANT NEAR SULTAN, WA

LOCATION.--Lat 47°54'27", long 121°48'51", in SW¼SW¼ sec.17, T.28 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank, 100 ft downstream from Henry M. Jackson powerplant, 3.2 mi north of Sultan, and at mile 4.5.

DRAINAGE AREA.--94.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 267.0 ft above National Geodetic Vertical Datum of 1929 (levels by Snohomish County Public Utility District).

REMARKS.--Estimated daily discharges: Nov. 5 to Dec. 7, Dec. 9-18, Feb. 7-20, Apr. 13-16. Records good except for estimated daily discharges, which are fair. City of Everett diverted about 91 ft³/s daily into Lake Chaplain for municipal use. Flow regulated at Spada Lake (station 12137300) since April 5, 1965; unadjusted for storage. Since May 1984, water is diverted from Spada Lake through a 10-ft diameter, 4-mi long pipeline for power production and returned to the river upstream from the station. Since July 1984, an undetermined flow was returned to river at upstream diversion dam by pipeline from Lake Chaplain for instream flow requirement.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,720 ft³/s Jan. 25, 1984, gage height, 10.76 ft from crest-stage gage; minimum, 145 ft³/s July 17, Aug. 1, 1985, gage height, 4.55 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,180 ft³/s June 7, gage height, 7.62 ft; minimum, 145 ft³/s July 17, Aug. 1, gage height, 4.55 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	223	1100	582	526	257	745	517	857	898	630	262	159
2	226	1660	372	521	222	316	593	857	892	619	163	159
3	222	1540	364	504	214	306	623	1150	879	630	171	163
4	225	1470	435	480	440	754	961	1490	767	325	162	169
5	228	1320	406	329	216	378	1290	1470	753	304	165	195
6	224	1310	385	329	225	434	800	1310	1010	487	158	259
7	225	1300	335	336	242	546	742	984	1990	270	182	197
8	227	1290	1440	332	239	392	741	960	1870	480	197	193
9	239	1320	1290	325	238	297	736	820	1730	502	174	187
10	274	1320	1260	299	239	220	984	812	1500	497	168	182
11	279	1350	1170	348	259	456	1350	432	1480	440	163	180
12	358	1150	1080	299	266	449	1490	511	1460	437	162	178
13	379	1330	786	299	252	485	1490	523	1460	426	167	196
14	303	1330	698	325	255	346	1480	609	1450	315	177	217
15	360	1310	817	257	346	335	1430	564	929	418	163	217
16	312	1260	771	211	254	210	1400	543	890	408	162	268
17	300	1230	748	208	244	212	1370	352	885	384	162	420
18	316	1150	571	231	244	214	1460	822	880	385	161	271
19	352	782	939	222	253	213	1460	1210	877	782	161	231
20	358	867	374	500	270	224	1470	1200	877	489	161	197
21	198	807	368	798	383	217	1470	1170	876	176	160	187
22	339	1030	602	838	598	215	1340	976	885	395	159	183
23	253	1090	851	750	432	244	851	1010	885	393	159	185
24	286	1090	865	524	524	227	904	1120	683	404	157	190
25	349	568	792	519	406	218	750	1190	396	414	157	190
26	406	1070	770	493	344	213	586	1190	436	403	157	187
27	488	633	605	292	329	222	895	1190	373	412	157	187
28	357	1180	567	514	475	215	1480	1180	451	286	157	185
29	521	1120	549	267	---	216	1090	1050	245	396	157	183
30	579	1070	411	274	---	595	1070	1190	242	405	159	183
31	573	---	475	274	---	563	---	1070	---	413	161	---
TOTAL	9979	35047	21632	12424	8666	10677	32823	29812	28949	13325	5181	6098
MEAN	322	1168	699	401	310	344	1094	962	965	430	167	203
MAX	579	1660	1440	838	598	754	1490	1490	1990	782	262	420
MIN	198	568	335	208	214	210	517	352	242	176	157	159
AC-FT	19790	69520	43010	24640	17190	21180	65100	59130	57420	26430	10280	12100

CAL YR 1984	TOTAL	271038	MEAN	741	MAX	6900	MIN	169	AC-FT	537600
WTR YR 1985	TOTAL	214663	MEAN	588	MAX	1990	MIN	157	AC-FT	425800

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1984 to current year.

INSTRUMENTATION.--Temperature recorder since June 1984.

REMARKS.--Daily record of water temperatures for Nov. 22 to Dec. 18, Jan. 2, 31, Apr. 9, 10, 20, 21 were not published due to malfunction of probe.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 15.5°C June 25, 1984; minimum, 1.5°C Dec. 20, 1984, Feb. 4, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 15.0°C July 28; minimum recorded, 1.5°C Dec. 20, Feb. 4.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	12.0	10.5	11.0	8.5	6.5	8.0	---	---	---	3.0	2.5	3.0
2	11.5	10.5	11.0	8.0	7.5	7.5	---	---	---	---	---	---
3	12.0	11.0	11.5	8.0	8.0	8.0	---	---	---	2.5	2.0	2.5
4	12.0	11.0	11.5	8.0	7.5	7.5	---	---	---	2.5	2.0	2.5
5	11.5	11.0	11.5	8.0	7.5	7.5	---	---	---	3.0	2.5	3.0
6	11.5	11.0	11.5	8.0	8.0	8.0	---	---	---	3.0	2.5	3.0
7	12.0	11.5	11.5	8.0	7.5	7.5	---	---	---	3.0	2.5	3.0
8	12.0	11.5	12.0	8.0	7.5	7.5	---	---	---	3.0	2.5	2.5
9	12.5	11.5	12.0	7.5	7.5	7.5	---	---	---	2.5	2.5	2.5
10	12.0	11.5	12.0	7.5	7.5	7.5	---	---	---	2.5	2.0	2.5
11	12.0	11.0	11.5	7.5	7.5	7.5	---	---	---	2.5	2.0	2.5
12	11.5	11.0	11.0	7.5	7.5	7.5	---	---	---	2.5	2.5	2.5
13	11.5	9.5	10.5	7.5	7.5	7.5	---	---	---	3.0	2.5	2.5
14	10.0	9.5	10.0	7.5	7.0	7.0	---	---	---	3.0	3.0	3.0
15	10.0	9.5	10.0	7.0	6.5	7.0	---	---	---	3.5	3.0	3.5
16	9.5	9.0	9.0	7.0	6.5	7.0	---	---	---	3.5	3.0	3.5
17	9.5	9.0	9.0	7.0	6.5	7.0	---	---	---	3.5	3.0	3.5
18	9.5	9.0	9.5	7.0	7.0	7.0	---	---	---	4.0	3.5	3.5
19	9.5	8.5	9.0	7.0	7.0	7.0	3.0	2.5	3.0	3.5	3.5	3.5
20	9.5	8.5	9.0	7.0	6.5	7.0	2.5	1.5	2.0	3.5	3.5	3.5
21	8.5	8.0	8.5	6.5	6.0	6.5	3.0	2.0	2.5	3.0	3.0	3.0
22	9.5	8.5	9.0	---	---	---	3.0	2.0	2.5	3.0	3.0	3.0
23	9.5	8.5	9.0	---	---	---	3.5	2.5	3.0	3.0	2.5	3.0
24	9.5	9.0	9.5	---	---	---	3.5	3.5	3.5	3.0	2.5	3.0
25	9.5	8.5	9.0	---	---	---	3.5	3.5	3.5	3.0	2.5	2.5
26	8.5	8.0	8.5	---	---	---	3.5	3.5	3.5	2.5	2.5	2.5
27	8.5	8.0	8.0	---	---	---	3.5	3.0	3.5	3.0	2.5	2.5
28	8.0	7.5	7.5	---	---	---	3.5	3.0	3.5	3.0	3.0	3.0
29	8.0	7.0	7.5	---	---	---	3.5	3.0	3.5	3.0	2.5	3.0
30	7.5	7.0	7.5	---	---	---	3.0	3.0	3.0	3.0	2.0	2.5
31	7.0	6.5	6.5	---	---	---	3.0	3.0	3.0	---	---	---
MONTH	12.5	6.5	10.0	---	---	---	---	---	---	---	---	---

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.5	2.5	4.0	4.0	4.0	6.5	5.5	6.0	7.5	6.5	7.0
2	3.0	2.5	3.0	4.0	3.0	3.5	6.0	5.5	6.0	7.5	7.0	7.5
3	2.5	2.0	2.0	4.0	3.0	3.5	5.5	5.0	5.5	7.5	6.0	6.5
4	2.5	1.5	2.0	4.0	3.5	3.5	5.5	4.5	5.0	6.5	6.0	6.5
5	2.5	2.0	2.5	4.5	3.5	4.0	5.0	4.5	5.0	6.5	6.5	6.5
6	2.5	2.0	2.5	4.0	3.5	3.5	6.5	4.5	5.5	7.0	6.0	6.5
7	3.0	2.0	2.5	4.0	3.0	3.5	6.0	5.5	5.5	7.0	6.5	6.5
8	3.0	2.5	2.5	4.0	3.0	3.5	5.5	5.5	5.5	7.0	6.5	7.0
9	3.0	2.5	2.5	4.0	3.0	4.0	---	---	---	7.0	6.0	6.5
10	3.0	2.5	3.0	4.5	3.0	4.0	---	---	---	6.0	6.0	6.0
11	3.0	3.0	3.0	4.0	3.5	4.0	5.5	5.5	5.5	7.0	6.0	6.5
12	3.0	2.5	3.0	4.0	3.5	4.0	5.5	5.0	5.5	8.0	6.0	7.0
13	3.0	2.5	2.5	4.5	3.5	4.0	5.5	5.0	5.5	7.0	6.5	7.0
14	3.0	2.5	3.0	4.5	3.5	4.0	5.5	5.0	5.5	8.0	7.0	7.5
15	3.5	3.0	3.0	4.5	3.5	4.5	5.5	5.0	5.5	9.0	6.5	8.0
16	3.5	3.0	3.5	5.0	4.0	4.5	6.0	5.5	5.5	9.5	8.0	8.5
17	3.5	3.0	3.0	5.0	4.5	4.5	6.0	5.5	6.0	10.5	6.0	8.5
18	3.5	2.5	3.0	5.0	4.5	5.0	6.0	5.5	6.0	7.5	6.0	7.0
19	3.0	3.0	3.0	5.0	4.5	5.0	5.5	5.0	5.0	7.0	6.0	6.5
20	3.5	3.0	3.5	5.5	4.5	5.0	---	---	---	6.5	6.0	6.0
21	3.5	3.5	3.5	5.0	4.5	4.5	---	---	---	7.0	6.5	7.0
22	3.5	3.0	3.5	4.5	4.0	4.5	6.0	6.0	6.0	8.0	6.5	7.0
23	4.0	3.5	4.0	4.5	4.0	4.5	6.0	5.5	5.5	8.0	7.0	7.5
24	4.5	4.0	4.5	4.5	4.0	4.5	5.5	5.0	5.5	7.5	7.0	7.0
25	4.5	4.0	4.0	5.0	4.0	4.5	6.0	5.0	5.5	7.0	6.5	7.0
26	4.0	3.5	4.0	4.5	3.5	4.0	6.0	5.5	5.5	7.0	6.5	7.0
27	4.0	2.5	3.5	4.5	4.0	4.5	6.5	5.5	6.0	7.0	6.5	7.0
28	4.0	4.0	4.0	5.0	4.0	4.5	6.0	5.0	5.5	7.5	6.5	7.0
29	---	---	---	5.0	4.5	4.5	6.5	5.5	6.5	7.0	6.5	7.0
30	---	---	---	4.5	4.0	4.5	6.5	6.0	6.5	10.0	6.5	8.0
31	---	---	---	5.5	4.5	5.0	---	---	---	8.0	7.0	7.5
MONTH	4.5	1.5	3.0	5.5	3.0	4.0	---	---	---	10.5	6.0	7.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	8.0	8.0	10.0	8.0	9.0	13.5	11.0	12.0	9.5	8.5	9.0
2	8.0	7.5	7.5	10.5	8.0	9.0	11.0	9.0	9.5	9.5	8.5	9.0
3	8.0	7.5	8.0	11.5	8.0	9.5	11.0	9.0	10.0	9.0	8.5	8.5
4	10.0	8.0	9.0	13.0	10.5	11.5	11.0	9.5	10.0	9.0	8.5	9.0
5	9.0	8.5	9.0	11.5	10.0	11.0	10.5	8.5	9.5	9.0	8.5	8.5
6	8.5	7.0	8.0	10.5	7.5	8.5	10.5	9.0	10.0	9.0	8.5	9.0
7	9.0	7.5	8.5	12.0	9.5	10.5	10.5	8.5	9.0	9.5	8.0	9.0
8	9.0	8.5	8.5	10.5	8.0	9.0	9.5	8.5	9.0	9.5	8.5	8.5
9	9.0	8.0	8.5	11.5	9.0	10.0	9.5	8.5	9.0	9.0	8.5	9.0
10	8.5	7.5	8.0	11.5	9.0	10.0	9.5	8.0	9.0	10.0	8.5	9.5
11	8.0	7.5	8.0	12.0	9.0	10.0	10.5	8.5	9.5	9.5	8.5	9.0
12	8.5	7.5	8.0	12.0	9.0	10.5	10.5	9.0	10.0	9.0	8.5	9.0
13	8.5	7.0	8.0	11.5	8.5	10.0	10.5	9.0	10.0	9.0	8.5	8.5
14	8.0	7.5	8.0	13.5	9.5	11.5	10.5	9.0	10.0	9.0	8.0	8.5
15	9.5	8.5	9.0	12.0	9.0	10.5	10.5	8.5	9.5	8.5	8.0	8.5
16	8.5	7.5	8.0	12.0	9.0	10.5	10.5	8.5	9.5	8.5	8.0	8.5
17	8.5	8.0	8.5	12.5	9.0	10.5	10.5	8.5	9.5	9.5	8.5	9.5
18	9.0	8.5	8.5	13.0	9.0	10.5	10.5	8.5	9.5	9.5	8.5	9.0
19	9.0	8.5	8.5	13.0	9.5	11.0	10.0	8.5	9.0	9.5	8.5	9.0
20	10.0	8.0	9.0	12.0	10.5	11.0	8.5	8.0	8.0	9.0	8.0	8.5
21	9.5	8.0	8.5	14.5	12.5	13.5	9.5	7.5	8.5	9.0	8.5	9.0
22	9.5	8.0	8.5	13.0	10.0	11.5	10.0	8.0	9.0	9.0	8.0	8.5
23	9.0	8.0	8.5	13.0	9.5	11.5	10.0	8.5	9.5	9.0	8.0	8.5
24	9.0	8.0	8.5	12.0	10.0	11.0	10.0	9.0	9.5	9.0	8.0	8.5
25	9.0	8.0	8.5	12.5	10.0	11.5	10.5	8.5	9.5	9.0	8.0	8.5
26	10.5	8.0	9.0	12.5	10.0	11.0	9.5	8.5	9.0	9.5	8.5	9.0
27	9.5	8.0	9.0	13.0	9.5	11.0	9.5	8.5	9.0	9.0	8.0	8.5
28	10.0	8.0	9.0	15.0	10.5	13.0	10.0	8.5	9.0	8.5	7.5	8.0
29	11.0	10.0	10.5	13.5	10.0	11.5	9.5	8.0	9.0	8.0	7.0	7.5
30	11.5	9.0	10.0	13.5	10.0	11.5	9.5	8.5	8.5	8.5	7.0	8.0
31	---	---	---	12.0	10.5	11.5	10.0	8.0	9.0	---	---	---
MONTH	11.5	7.0	8.5	15.0	7.5	10.5	13.5	7.5	9.5	10.0	7.0	8.5

BEST COPY AVAILABLE

12141300 MIDDLE FORK SNOQUALMIE RIVER NEAR TANNER, WA

LOCATION.--Lat 47°29'10", long 121°38'48", in SW¼SE¼ sec.10, T.23 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.7 mi downstream from Granite Creek, 6.4 mi east of North Bend, and at mile 55.6.

DRAINAGE AREA.--154 mi².

PERIOD OF RECORD.--February 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 780 ft, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 4-7, 10. Records good. No regulation or diversion upstream from station. Water temperatures June 1979 to September 1980.

AVERAGE DISCHARGE.--24 years, 1,256 ft³/s, 110.76 in/yr, 910,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 ft³/s Dec. 2, 1977, gage height, 14.93 ft; minimum, 111 ft³/s Oct. 13, 14, 1979, gage height, 1.00 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, reached a stage of 18.7 ft from floodmarks, discharge, 49,000 ft³/s by slope-area measurement at site 6 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1830	*10,900	*9.42	No other peak greater than base discharge.			

Minimum discharge, 147 ft³/s Aug. 30, gage height, 1.11 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	219	664	809	571	380	720	2410	1780	2430	961	321	179
2	211	2040	669	529	358	645	2210	2450	2070	1100	319	185
3	206	3320	582	532	311	586	2630	2710	1980	1240	307	171
4	218	3110	523	535	308	558	1770	2030	2910	1210	289	160
5	255	1830	478	526	333	517	1410	1660	2400	1160	278	346
6	229	1420	447	533	318	477	1280	1400	2110	955	259	1520
7	213	1620	623	547	310	448	1430	1270	6180	883	257	884
8	216	1220	2520	544	293	422	1800	1180	5480	936	332	509
9	309	1100	1550	502	280	411	2340	1080	2860	984	312	419
10	377	1060	1080	466	304	412	2870	1160	2210	956	349	445
11	531	2060	847	438	427	408	2840	1170	2080	841	308	413
12	735	1640	783	415	634	412	3400	974	2510	771	270	348
13	1570	1690	723	403	452	403	2780	934	2390	703	254	327
14	1030	1620	1630	449	447	407	2620	1210	2700	631	240	324
15	742	1130	1720	865	796	416	2950	1190	2960	609	235	308
16	577	891	1090	733	607	449	3120	1920	2120	585	229	313
17	486	751	850	940	507	552	2220	3040	1960	567	217	807
18	422	858	688	1030	452	592	1700	3380	2380	557	212	673
19	380	1340	621	935	478	588	1430	2990	2540	520	205	478
20	347	1360	581	1060	567	599	1220	2390	2260	503	198	382
21	322	1030	588	927	721	605	1040	2150	1870	479	188	336
22	302	815	1820	785	1450	583	949	2890	1730	453	176	301
23	288	895	2660	713	1270	656	1130	3480	1500	439	170	268
24	300	978	1440	660	2120	631	968	3430	1160	430	169	248
25	2510	798	1020	606	1580	557	917	3410	975	402	172	234
26	1940	703	921	559	1070	502	904	2600	1080	364	175	221
27	1290	735	823	518	844	474	3920	2200	1200	340	169	210
28	1170	1120	708	483	751	442	3660	1890	1080	317	161	197
29	919	1300	699	446	---	485	2050	2040	1110	315	152	185
30	817	1040	798	406	---	1450	1640	3020	990	318	157	173
31	749	---	663	393	---	2540	---	2260	---	321	196	---
TOTAL	19876	40138	30954	19049	18368	18947	61318	65288	69225	20850	7276	11564
MEAN	641	1338	999	614	656	611	2044	2106	2308	673	235	385
MAX	2510	3320	2660	1060	2120	2540	3920	3480	6180	1240	349	1520
MIN	206	664	447	393	280	403	917	934	975	315	152	160
CFSM	4.16	8.69	6.49	3.99	4.26	3.97	13.3	13.7	15.0	4.37	1.53	2.50
IN.	4.80	9.70	7.48	4.60	4.44	4.58	14.81	15.77	16.72	5.04	1.76	2.79
AC-FT	39420	79610	61400	37780	36430	37580	121600	129500	137300	41360	14430	22940

CAL YR 1984 TOTAL 458914 MEAN 1254 MAX 12800 MIN 206 CFSM 8.14 IN. 110.85 AC-FT 910300
WTR YR 1985 TOTAL 382853 MEAN 1049 MAX 6180 MIN 152 CFSM 6.81 IN. 92.48 AC-FT 759400

0175

12142000 NORTH FORK SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WA

LOCATION.--Lat 47°36'54", long 121°42'44", in NW¼NW¼ sec.31, T.25 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Calligan Creek, 7.0 mi northeast of town of Snoqualmie Falls, and at mile 9.2.

DRAINAGE AREA.--64.0 mi².

PERIOD OF RECORD.--August 1929 to October 1949, water years 1950-60 (annual maximum), February 1961 to current year.

REVISED RECORDS.--WSP 1346: 1930-31(M), 1932, 1935, 1936-37(M), 1938, 1939-42(M), 1944, 1945-46(P), 1947, 1948(P), 1949(M). WSP 1736: 1932-34(M), 1935, 1938(M), 1943-45(M), 1947(M), drainage area. WSP 1932: 1950-54(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,130 ft, from topographic map. Prior to Oct. 19, 1949, water-stage recorder, and October 1949 to February 1961, crest-stage gage, at site 1,500 ft downstream at different datum.

REMARKS.--Estimated daily discharges: July 10-18, Aug. 19-29. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Daily water temperatures June 1979 to August 1980.

AVERAGE DISCHARGE.--44 years (water years 1930-49, 1962-85), 500 ft³/s, 106.09 in/yr, 362,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft³/s Feb. 26, 1932, gage height, 17.5 ft, site and datum then in use, from rating curve extended above 2,200 ft³/s on basis of slope-area measurement at gage height 16.47 ft; minimum observed, 30 ft³/s Sept. 17-19, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1900	*4,640	*8.26	No other peak greater than base discharge.			

Minimum discharge, 53 ft³/s Aug. 28, gage height, 1.78 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	250	383	242	178	323	1160	711	892	300	90	68
2	94	1430	314	227	169	284	995	977	695	390	90	69
3	91	1640	269	235	148	257	1150	1130	670	397	89	64
4	92	1270	241	259	142	243	715	749	1020	393	83	60
5	106	713	221	274	151	226	590	672	802	390	79	170
6	94	591	208	272	146	210	549	578	695	291	75	945
7	90	734	340	277	143	199	610	520	3570	291	75	466
8	92	519	1610	280	138	188	754	464	2010	297	91	270
9	171	441	733	255	132	182	976	424	1090	303	113	216
10	206	446	484	234	133	181	1150	488	826	285	122	207
11	249	1160	372	218	161	179	1200	504	766	255	95	184
12	325	782	335	208	244	177	1380	400	880	245	84	163
13	815	775	295	203	183	173	1080	386	745	216	79	150
14	475	720	711	250	180	174	1020	625	1080	195	75	140
15	330	490	774	542	344	175	930	565	982	188	72	137
16	242	386	469	407	264	184	1250	910	705	174	69	147
17	198	328	368	475	217	220	853	1220	660	168	68	508
18	170	454	297	512	195	244	635	1200	772	157	65	310
19	152	797	267	446	197	239	551	982	772	145	63	213
20	137	760	251	519	224	242	466	778	675	138	61	173
21	125	489	244	443	271	249	399	730	579	130	61	150
22	117	371	728	370	730	225	367	1020	543	122	60	136
23	111	462	1250	337	665	245	435	1200	460	117	59	122
24	115	506	681	318	1060	257	374	1140	362	112	57	112
25	1170	375	476	290	746	219	342	1150	324	106	56	105
26	685	317	412	263	490	200	380	844	393	101	56	99
27	470	354	361	243	385	191	1950	725	397	96	55	93
28	426	580	313	226	341	183	1580	630	341	93	53	88
29	325	700	288	210	---	184	815	730	365	91	55	83
30	287	493	309	191	---	606	645	1160	303	91	66	80
31	257	---	272	185	---	1170	---	826	---	93	76	---
TOTAL	8314	19333	14276	9411	8377	8029	25321	24438	24374	6370	2292	5728
MEAN	268	644	461	304	299	259	844	788	812	205	73.9	191
MAX	1170	1640	1610	542	1060	1170	1950	1220	3570	397	122	945
MIN	90	250	208	185	132	173	342	386	303	91	53	60
CFSM	4.19	10.1	7.20	4.75	4.67	4.05	13.2	12.3	12.7	3.20	1.19	2.98
IN.	4.83	11.24	8.30	5.47	4.87	4.67	14.72	14.20	14.17	3.70	1.33	3.33
AC-FT	16490	38350	28320	18670	16620	15930	50220	48470	48350	12630	4550	11360

CAL YR 1984 TOTAL 186825 MEAN 510 MAX 4760 MIN 70 CFSM 7.97 IN. 108.59 AC-FT 370600
WTR YR 1985 TOTAL 156263 MEAN 428 MAX 3570 MIN 53 CFSM 6.69 IN. 90.83 AC-FT 309900

12143400 SOUTH FORK SNOQUALMIE RIVER ABOVE ALICE CREEK, NEAR GARCIA, WA

LOCATION.—Lat 47°24'35", long 121°35'10", in SW¼SW¼ sec.6, T.22 N., R.10 E., King County, Hydrologic Unit 17110010, Snoqualmie National Forest, on left bank 0.4 mi upstream from Alice Creek, 1.5 mi southeast of Garcia, 11 mi southeast of North Bend, and at mile 17.3.

DRAINAGE AREA.—41.6 mi².

PERIOD OF RECORD.—October 1960 to current year.

REVISED RECORDS.—WDR WA-80-1: 1978.

GAGE.—Water-stage recorder. Datum of gage is 1,447.67 ft above Washington Highway Department datum.

REMARKS.—Estimated daily discharges: Feb. 4-7. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.—25 years, 302 ft³/s, 98.59 in/yr, 218,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 7,090 ft³/s Nov. 19, 1962, gage height, 11.96 ft; minimum, 25 ft³/s Oct. 25, 26, 27, 1974, gage height, 0.99 ft; minimum gage height, 0.06 ft all or part of each day Oct. 10-14, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.—Floods in November and December 1959 reached stages of 14.7 ft and 13.4 ft respectively, from flood marks, discharges not determined.

EXTREMES FOR CURRENT YEAR.—Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1000	*2,310	*3.91	No other peak greater than base discharge.			

Minimum discharge, 29 ft³/s Aug. 28-30, Sept. 3-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	125	152	114	75	160	614	537	700	209	57	33
2	38	167	133	100	69	146	669	777	587	229	56	33
3	37	431	119	99	59	134	868	808	592	232	53	30
4	40	627	106	97	59	129	551	563	775	221	51	29
5	44	404	99	92	66	119	457	439	597	197	48	54
6	38	357	92	87	64	111	437	393	598	170	47	236
7	36	408	111	83	62	106	489	378	1910	164	51	120
8	37	327	258	80	61	103	586	357	1100	164	72	73
9	46	305	222	76	58	104	794	338	708	163	57	66
10	58	317	186	66	66	106	951	360	595	150	76	77
11	88	445	160	66	72	109	939	324	592	136	57	67
12	149	416	155	65	78	113	1100	288	665	126	51	57
13	362	438	141	65	65	113	933	290	583	116	47	54
14	230	406	313	73	66	119	892	365	658	107	44	51
15	165	296	348	100	86	126	890	398	664	102	43	51
16	129	240	243	83	73	146	1030	747	497	98	42	63
17	108	205	201	87	68	177	721	1080	503	95	40	186
18	94	219	165	99	65	191	545	1150	568	91	39	130
19	84	288	141	102	71	186	433	992	567	85	38	90
20	77	288	139	130	82	196	349	819	494	81	38	73
21	71	238	151	132	90	192	295	767	415	77	37	64
22	66	202	285	126	166	175	266	980	380	74	36	57
23	64	197	412	118	179	181	290	1100	324	71	34	53
24	68	185	297	110	326	165	247	1050	266	67	32	49
25	573	164	232	103	285	146	223	1100	244	64	32	46
26	381	148	206	97	218	133	225	808	267	60	31	44
27	258	143	187	92	184	124	748	695	268	58	31	42
28	234	169	161	89	167	113	864	601	242	56	31	40
29	181	191	154	85	---	111	543	653	241	56	29	38
30	166	175	142	79	---	330	458	849	216	56	31	37
31	144	---	126	78	---	561	---	685	---	56	37	---
TOTAL	4105	8521	5837	2873	2980	4925	18405	20691	16816	3631	1368	2043
MEAN	132	284	188	92.7	106	159	614	667	561	117	44.1	68.1
MAX	573	627	412	132	326	561	1100	1150	1910	232	76	236
MIN	36	125	92	65	58	103	223	288	216	56	29	29
CFSM	3.17	6.83	4.52	2.23	2.55	3.82	14.8	16.0	13.5	2.81	1.06	1.64
IN.	3.67	7.62	5.22	2.57	2.66	4.40	16.46	18.50	15.04	3.25	1.22	1.83
AC-FT	8140	16900	11580	5700	5910	9770	36510	41040	33350	7200	2710	4050

CAL YR 1984	TOTAL	110846	MEAN	303	MAX	3190	MIN	36	CFSM	7.28	IN.	99.12	AC-FT	219900
WTR YR 1985	TOTAL	92195	MEAN	253	MAX	1910	MIN	29	CFSM	6.08	IN.	82.44	AC-FT	162900

12143600 SOUTH FORK SNOQUALMIE RIVER AT EDGEWICK, WA

LOCATION.--Lat 47°27'10", long 121°43'00", in NE¼NE¼ sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on left bank at upstream side of highway bridge in Edgewick, 3 mi downstream from Change Creek, and at mile 8.6.

DRAINAGE AREA.--65.9 mi².

PERIOD OF RECORD.--July to October 1962, March 1963 to September 1965, October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 571.24 ft above National Geodetic Vertical Datum of 1929. Prior to August 3, 1983, gage at site 45 ft downstream at elevation 5.90 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,420 ft³/s Jan. 24, 1984, gage height, 12.96 ft, from high-water mark; minimum, 58 ft³/s Oct. 10, 11, 1963, Sept. 4, 5, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1230	*3,230	*10.35	No other peak greater than base discharge.			

Minimum discharge, 58 ft³/s Sept. 4, 5, gage height, 6.63 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	195	268	207	145	271	917	800	954	232	84	63
2	63	338	235	188	139	250	954	1070	829	248	82	64
3	63	793	212	182	124	232	1170	1140	799	259	80	61
4	64	1070	191	178	124	225	809	867	1010	245	76	59
5	66	713	179	173	136	211	654	706	841	228	76	64
6	64	589	167	164	130	199	608	637	788	196	73	247
7	63	678	193	161	127	189	673	608	2450	184	74	155
8	63	541	529	154	124	183	795	579	1570	183	92	105
9	69	483	460	148	119	180	1010	545	1010	183	83	93
10	80	487	357	135	118	182	1220	576	823	173	97	98
11	112	752	291	131	145	182	1170	541	785	157	85	93
12	145	695	275	128	161	184	1400	474	877	146	78	83
13	479	688	254	129	136	184	1240	472	788	135	73	79
14	293	684	525	135	136	187	1190	579	844	126	70	76
15	221	487	660	178	183	196	1160	605	910	121	69	75
16	176	386	440	162	159	214	1330	963	674	116	68	77
17	150	321	348	176	146	254	1010	1330	646	114	66	195
18	133	328	284	203	138	276	815	1400	733	110	65	163
19	121	443	245	207	148	273	682	1250	735	105	65	117
20	112	488	235	280	170	281	559	1070	646	102	64	98
21	106	406	247	272	179	286	473	982	533	98	64	89
22	101	332	468	248	305	268	428	1190	476	95	63	82
23	99	332	777	227	327	295	479	1310	404	92	63	78
24	99	318	554	211	567	273	410	1280	317	91	62	75
25	641	280	415	197	525	241	373	1410	278	88	62	72
26	549	253	361	185	386	221	359	1080	298	85	61	70
27	366	251	323	179	315	210	976	943	310	83	61	68
28	335	289	277	171	283	197	1300	845	272	83	61	65
29	257	346	269	163	---	190	885	863	271	82	59	64
30	231	318	257	152	---	473	749	1150	247	81	60	63
31	213	---	227	150	---	909	---	942	---	81	64	---
TOTAL	5598	14284	10523	5574	5695	7916	25798	28207	22118	4322	2200	2791
MEAN	181	476	339	180	203	255	860	910	737	139	71.0	93.0
MAX	641	1070	777	280	567	909	1400	1410	2450	259	97	247
MIN	63	195	167	128	118	180	359	472	247	81	59	59
CFSM	2.75	7.22	5.14	2.73	3.08	3.87	13.1	13.8	11.2	2.11	1.08	1.41
IN.	3.16	8.06	5.94	3.15	3.21	4.47	14.56	15.92	12.49	2.44	1.24	1.58
AC-FT	11100	28330	20870	11060	11300	15700	51170	55950	43870	8570	4360	5540

CAL YR 1984 TOTAL 174311 MEAN 476 MAX 4390 MIN 63 CFSM 7.22 IN. 98.40 AC-FT 345700
WTR YR 1985 TOTAL 135026 MEAN 370 MAX 2450 MIN 59 CFSM 5.61 IN. 76.22 AC-FT 267800

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12143700 BOXLEY CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'58", long 121°45'04", in NE¼SW¼ sec.35, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on left bank 1.7 mi northeast of town of Cedar Falls, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--1.57 mi².

PERIOD OF RECORD.--August 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 13 to Jan. 3, Jan. 8 to Feb. 21. Records good except for estimated daily discharges, which are poor. No regulation or diversion upstream from station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--40 years, 24.2 ft³/s, 17,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 159 ft³/s Dec. 19, 1977, gage height, 2.88 ft, maximum gage height, 3.13 ft Feb. 28, 1982; no flow part or all of each day Oct. 28 to Nov. 9, 1966, Nov. 5-8, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 66 ft³/s June 24, gage height, 3.02 ft; minimum, 1.5 ft³/s Nov. 16-23.

DISCHARGE, IN CUB . FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	3.3	3.0	13	6.4	3.4	3.9	28	52	61	32	14
2	11	3.5	3.1	13	6.2	3.4	4.0	28	52	59	30	14
3	11	3.5	3.4	13	6.0	3.2	4.1	28	54	58	29	13
4	11	3.4	3.6	13	5.7	3.2	4.3	29	53	58	29	13
5	11	3.0	3.9	13	5.4	3.2	4.4	29	52	57	28	13
6	10	2.7	4.3	13	5.3	3.1	4.4	30	52	57	28	13
7	9.8	2.5	5.1	13	5.3	3.1	4.5	30	54	55	28	13
8	9.6	2.2	7.8	13	5.2	3.1	4.6	31	52	54	26	12
9	9.4	2.2	8.6	12	5.2	3.1	4.9	32	51	52	25	12
10	9.2	2.1	9.2	11	5.2	3.1	5.1	33	51	51	24	12
11	8.7	2.0	10	11	5.2	3.1	5.3	33	52	51	24	11
12	8.7	1.9	11	10	5.1	3.0	5.6	34	53	50	23	11
13	8.4	1.8	11	10	4.9	3.0	5.8	35	55	48	22	10
14	8.0	1.7	13	10	4.8	3.0	6.5	36	57	47	22	10
15	7.5	1.7	13	9.6	4.5	3.0	7.1	37	58	47	21	9.9
16	7.2	1.5	13	9.5	4.5	3.0	7.7	37	59	46	21	9.2
17	6.6	1.5	13	9.2	4.5	3.0	8.6	37	60	45	21	9.2
18	6.1	1.5	13	8.9	4.3	3.0	9.5	38	61	44	21	8.9
19	5.9	1.5	13	8.6	4.2	3.0	11	39	61	42	20	8.3
20	5.7	1.5	13	8.6	4.1	3.1	11	40	62	40	19	8.3
21	5.3	1.5	13	8.2	4.0	3.2	13	40	62	41	18	8.1
22	4.9	1.5	13	7.6	3.8	3.4	15	41	62	40	18	7.6
23	4.5	1.6	13	7.4	3.8	3.4	17	41	63	39	17	7.6
24	4.2	1.7	13	7.1	3.7	3.5	19	44	63	38	17	7.4
25	4.2	1.7	13	7.0	3.6	3.5	21	46	62	37	16	6.8
26	3.9	1.7	13	6.8	3.6	3.5	22	47	62	37	16	6.6
27	3.6	2.0	13	6.8	3.5	3.5	25	49	61	35	16	6.6
28	3.2	2.2	13	6.8	3.5	3.5	26	50	61	34	16	6.6
29	3.1	2.4	13	6.7	---	3.6	27	50	61	33	15	6.1
30	3.0	2.8	13	6.5	---	3.8	28	51	61	33	15	5.9
31	3.1	---	13	6.4	---	3.9	---	52	---	32	15	---
TOTAL	219.8	64.1	318.0	299.7	131.5	100.9	335.3	1175	1719	1421	672	294.1
MEAN	7.09	2.14	10.3	9.67	4.70	3.25	11.2	37.9	57.3	45.8	21.7	9.80
MAX	12	3.5	13	13	6.4	3.9	28	52	63	61	32	14
MIN	3.0	1.5	3.0	6.4	3.5	3.0	3.9	28	51	32	15	5.9
AC-FT	436	127	631	594	261	200	665	2330	3410	2820	1330	583

CAL YR 1984	TOTAL	8037.4	MEAN	22.0	MAX	50	MIN	1.5	AC-FT 15940
WTR YR 1985	TOTAL	6750.4	MEAN	18.5	MAX	63	MIN	1.5	AC-FT 13390

12143800 RATTLESNAKE LAKE AT CEDAR FALLS, WA

LOCATION.--Lat 47°25'39", long 121°46'29", in SW¼SW¼ sec.34, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on southeast shore, and 0.6 mi northeast of town of Cedar Falls.

DRAINAGE AREA.--1.86 mi^2.

PERIOD OF RECORD.--November to December 1945 (fragmentary), January 1953 to current year. Extremes prior to October 1960 published in WSP 1932 and daily gage heights are available in files of the Geological Survey.

GAGE.--Nonrecording gage. Datum of gage is 7.25 ft above National Geodetic Vertical Datum of 1929 (levels by city of Seattle).

REMARKS.--No diversions. Inflow is mostly seepage from Chester Morse Lake. Most outflow from lake is seepage; however, when the lake level exceeds 906 ft gage height, surface-water discharge flows through Rattlesnake Ditch toward Boxley Creek.

COOPERATION.--Gage readings furnished by city of Seattle.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 911.80 ft Nov. 25, 26, 1959; minimum observed, 852.80 ft Jan. 9, 1953, but may have been less during Dec. 13, 1965, to Jan. 3, 1966, and Nov. 10 to Dec. 23, 1970, when water was below gage.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 906.28 ft June 12-15; minimum observed, 889.44 ft Nov. 30.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 0730

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	899.61	894.41	899.62	898.10	898.30	894.56	890.42	898.20	904.74	905.78	904.02	900.14
2	899.50	894.29	889.80	898.32	897.76	894.44	890.60	898.64	904.90	905.76	903.96	900.04
3	899.36	894.20	889.91	898.56	897.64	894.28	890.82	899.06	905.04	905.74	903.87	899.88
4	899.16	894.10	889.98	898.65	897.46	894.14	891.00	899.42	905.18	905.70	903.78	899.70
5	899.12	893.88	890.00	898.78	897.40	893.96	891.14	899.78	905.26	905.64	903.66	899.58
6	899.00	893.76	890.18	898.90	897.40	893.76	891.28	900.06	905.32	905.64	903.56	899.46
7	898.88	892.68	890.24	898.92	896.90	893.54	891.40	900.34	905.52	905.62	903.48	899.34
8	898.72	892.37	890.52	899.08	896.80	893.34	891.54	900.60	905.74	905.58	903.41	899.20
9	898.64	892.03	890.72	899.14	896.64	893.14	891.64	900.82	905.98	905.54	903.30	899.04
10	898.50	891.85	890.91	899.18	896.34	892.94	891.76	901.02	906.16	905.48	903.21	898.88
11	898.37	892.76	891.18	899.20	896.34	892.70	891.94	901.34	906.26	905.44	903.10	898.70
12	898.18	892.52	891.56	899.26	896.08	892.50	892.10	901.40	906.28	905.40	902.96	898.52
13	898.10	892.32	891.78	899.30	895.86	892.32	892.26	901.56	906.28	905.38	902.84	898.34
14	897.96	892.12	892.06	899.20	895.68	892.16	892.46	901.76	906.28	905.28	902.68	898.15
15	897.78	891.78	892.50	899.26	895.60	891.90	892.62	901.89	906.28	905.25	902.58	897.98
16	897.60	891.65	892.88	899.18	895.44	891.70	892.84	902.02	906.26	905.18	902.41	897.78
17	897.40	891.43	893.28	899.10	895.32	891.54	893.06	902.18	906.20	905.10	902.32	897.64
18	897.20	891.18	893.64	899.14	895.18	891.38	893.32	902.30	906.14	905.08	902.10	897.48
19	897.00	891.00	893.95	899.08	895.04	891.22	893.60	902.48	906.10	905.03	901.96	897.28
20	896.78	890.84	894.24	899.10	894.94	891.08	893.90	902.64	906.06	904.96	901.84	897.10
21	896.60	890.60	894.64	899.04	894.81	890.98	894.20	902.80	906.04	904.89	901.73	896.90
22	896.40	890.32	894.99	899.00	894.74	890.90	894.44	903.00	906.00	904.82	901.56	896.72
23	896.20	890.14	895.30	898.90	894.68	890.84	894.76	903.16	905.98	904.74	901.40	896.52
24	895.98	890.04	895.68	898.85	894.68	890.78	895.10	903.32	905.96	904.68	901.28	896.34
25	895.82	889.82	896.06	898.76	894.72	890.70	895.48	903.58	905.94	904.59	901.14	896.14
26	895.64	889.60	896.45	898.64	894.74	890.58	895.84	903.80	905.88	904.50	900.99	895.94
27	895.48	889.60	896.92	898.56	894.70	890.52	896.24	903.94	905.86	904.44	900.84	895.74
28	895.26	889.60	897.14	898.44	894.62	890.48	896.76	904.08	905.86	904.36	900.66	895.54
29	895.00	889.52	897.40	898.32	---	890.40	897.22	904.24	905.82	904.26	900.52	895.28
30	894.78	889.44	897.70	898.26	---	890.44	897.74	904.48	905.80	904.18	900.37	895.10
31	894.60	---	897.94	898.20	---	890.50	---	904.60	---	904.10	900.22	---
MEAN	897.37	891.66	893.52	898.85	895.92	892.06	893.25	901.89	905.84	905.10	902.31	897.82
MAX	899.61	894.41	899.62	899.30	898.30	894.56	897.74	904.60	906.28	905.78	904.02	900.14
MIN	894.60	889.44	889.80	898.10	894.62	890.40	890.42	898.20	904.74	904.10	900.22	895.10

WTR YR 1985 MEAN 897.99 MAX 906.28 MIN 889.44

12143900 BOXLEY CREEK NEAR EDGEWICK, WA

LOCATION.--Lat 47°26'56", long 121°43'50", in SW¼SE¼NW¼ sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 4.0 mi southeast of North Bend, and at mile 0.9.

DRAINAGE AREA.--3.64 mi².

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 650 ft, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 30 to Feb. 20, Aug. 2-14. Records fair. Many small diversions for domestic use upstream from station. No regulation; flow is mostly seepage from Chester Morse Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 173 ft³/s Feb. 24, 1982, gage height, 5.07 ft; minimum daily discharge, 11 ft³/s Nov. 13-15, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 83 ft³/s May 24, June 21, gage height, 4.76 ft; minimum daily, 16 ft³/s Sept. 25-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	21	23	31	22	20	22	54	67	71	43	23
2	25	25	22	30	22	20	22	50	68	70	42	23
3	25	27	22	29	22	20	24	46	68	68	40	23
4	25	26	22	30	22	20	23	47	67	67	39	22
5	24	23	22	30	22	20	22	45	67	66	38	22
6	24	22	21	29	22	20	21	44	67	65	37	22
7	24	21	23	29	22	20	21	46	76	64	35	21
8	23	20	29	29	22	20	21	48	69	63	34	21
9	23	20	26	29	22	21	21	49	67	62	33	21
10	23	21	26	28	22	20	21	51	66	60	33	21
11	22	22	25	28	22	20	21	50	67	59	32	20
12	23	20	27	28	21	20	21	51	66	58	32	19
13	23	22	27	28	21	20	21	53	68	57	31	19
14	22	21	36	28	21	20	21	51	72	55	31	18
15	21	20	36	28	21	20	22	51	74	56	30	18
16	21	19	32	27	21	19	24	51	75	59	30	18
17	21	19	29	27	21	20	25	51	76	57	29	19
18	20	19	28	26	21	20	26	52	74	54	28	18
19	20	20	28	26	21	20	30	52	77	52	27	17
20	20	21	29	28	21	21	31	52	79	50	26	17
21	20	20	30	26	22	22	32	53	78	49	26	17
22	19	19	40	25	23	22	36	53	79	46	26	17
23	19	21	42	25	22	22	41	54	78	46	26	17
24	18	20	38	24	22	21	44	55	76	45	26	17
25	20	20	35	24	22	22	45	62	76	45	26	16
26	21	20	34	23	21	22	48	60	74	45	25	16
27	20	23	35	23	21	23	52	60	76	45	25	16
28	20	23	32	22	21	22	52	62	75	45	25	16
29	19	24	34	22	---	21	53	66	75	45	24	16
30	19	24	34	22	---	24	54	67	73	43	24	17
31	18	---	32	22	---	23	---	67	---	43	24	---
TOTAL	667	643	919	826	605	645	917	1653	2170	1710	947	567
MEAN	21.5	21.4	29.6	26.6	21.6	20.8	30.6	53.3	72.3	55.2	30.5	18.9
MAX	25	27	42	31	23	24	54	67	79	71	43	23
MIN	18	19	21	22	21	19	21	44	66	43	24	16
AC-FT	1320	1280	1820	1640	1200	1280	1820	3280	4300	3390	1880	1120

CAL YR 1984 TOTAL 16501 MEAN 45.1 MAX 123 MIN 18 AC-FT 32730
WTR YR 1985 TOTAL 12269 MEAN 33.6 MAX 79 MIN 16 AC-FT 24340

12144000 SOUTH FORK SNOQUALMIE RIVER AT NORTH BEND, WA

LOCATION.--Lat 47°29'35", long 121°47'20", in SW¼NE¼ sec.9, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank on upstream side of Bendigo Street crossing at North Bend, and at mile 2.0.

DRAINAGE AREA.--81.7 mi².

PERIOD OF RECORD.--July 1907 to September 1926, February 1929 to September 1938, June 1945 to April 1950, October 1960 to August 1974, February 1984 to current year.

REVISED RECORDS.--WSP 1316: 1918-19(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.33 ft above National Geodetic Vertical Datum of 1929. Prior to April 11, 1950, nonrecording gage or water-stage recorder at several sites within 0.5 mi upstream from present site at various datums. October 1, 1960 to March 10, 1965, at site 0.46 mi upstream at datum 1.86 ft lower. March 10, 1965 to August 31, 1974, at site 0.46 mi upstream at datum 6.86 ft lower.

REMARKS.--No estimated daily discharges. Records good. City of North Bend diverts about 0.8 ft³/s daily from Clough Creek for municipal use. No regulation.

AVERAGE DISCHARGE.--46 years (1907-26, 1929-38, 1945-49, 1960-73, 1985), 547 ft³/s, 90.92 in/yr, 396,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 9,280 ft³/s Nov. 20, 1962, gage height, 13.09 ft, site and datum then in use, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 15.2 ft, from high-water mark, site and datum then in use, Oct. 25, 1934; minimum discharge, 63 ft³/s Oct. 22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 22, 1959, reached a stage of 14.49 ft, site and datum then in use, from floodmarks, discharge, 13,000 ft³/s, slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1400	*3,000	*12.00	No other peak greater than base discharge.			

Minimum daily discharge, 125 ft³/s Aug. 29 to Sept. 5

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	244	385	346	223	363	994	869	1060	386	169	125
2	135	357	338	321	215	342	1070	1110	957	386	169	128
3	135	774	307	302	196	319	1340	1240	893	410	168	128
4	135	1120	284	294	191	312	1010	1030	1060	388	162	125
5	135	845	267	288	199	297	829	846	971	366	160	125
6	135	662	253	273	199	283	762	760	873	335	155	272
7	135	693	258	267	199	268	778	719	2380	317	153	242
8	135	638	559	261	199	259	854	690	1810	313	163	196
9	135	573	599	249	196	249	1060	649	1190	313	170	179
10	138	539	492	236	196	249	1340	641	996	307	172	173
11	153	747	415	222	207	249	1310	651	917	289	170	173
12	169	777	392	224	235	249	1540	580	982	281	155	164
13	462	737	371	221	228	249	1380	553	956	267	150	160
14	351	778	568	220	224	249	1320	621	936	255	145	155
15	280	593	834	229	255	249	1270	646	1040	245	143	151
16	253	486	604	232	255	254	1440	942	860	242	141	151
17	207	410	500	233	248	276	1180	1390	787	236	137	228
18	191	392	418	249	242	299	971	1490	871	226	136	251
19	179	460	361	252	245	301	846	1360	881	217	136	206
20	172	516	340	313	255	306	715	1190	812	208	136	183
21	164	496	338	334	252	315	623	1060	713	201	136	172
22	160	429	519	326	347	317	571	1210	647	196	133	164
23	160	416	868	311	371	338	600	1390	592	191	132	158
24	160	425	721	293	578	350	567	1390	519	189	132	153
25	591	379	576	279	645	326	543	1530	465	185	130	149
26	600	343	513	267	503	304	515	1230	452	180	129	147
27	422	332	483	256	425	291	1000	1070	471	174	128	142
28	373	348	423	248	383	277	1520	971	445	169	128	139
29	314	400	401	241	---	267	1050	935	427	169	125	137
30	280	424	421	230	---	509	886	1260	415	169	125	135
31	269	---	380	227	---	1020	---	1060	---	169	125	---
TOTAL	7245	16333	14188	8244	7911	9936	29884	31083	26378	7979	4513	5011
MEAN	234	544	458	266	283	321	996	1003	879	257	146	167
MAX	600	1120	868	346	645	1020	1540	1530	2380	410	172	272
MIN	135	244	253	220	191	249	515	553	415	169	125	125
CFSM	2.86	6.66	5.61	3.26	3.46	3.93	12.2	12.3	10.8	3.15	1.79	2.04
IN.	3.30	7.44	6.46	3.75	3.60	4.52	13.61	14.15	12.01	3.63	2.05	2.28
AC-FT	14370	32400	28140	16350	15690	19710	59270	61650	52320	15830	8950	9940

WTR YR 1985 TOTAL 168705 MEAN 462 MAX 2380 MIN 125 CFSM 5.65 IN. 76.82 AC-FT 334600

12144500 SNOQUALMIE RIVER NEAR SNOQUALMIE, WA

LOCATION.--Lat 47°32'43", long 121°50'28", in SW¼SW¼ sec.19, T.24 N., R.8 E., King County, Hydrologic Unit 17110010, on left bank 0.3 mi downstream from Snoqualmie Falls, 0.4 mi upstream from Tokul Creek, 1.5 mi northwest of Snoqualmie, and at mile 40.0.

DRAINAGE AREA.--375 mi².

PERIOD OF RECORD.--May 1898 to July 1899; August to September 1899 (monthly discharge only); January to July 1900, September 1902 to July 1904; August to September 1904 (monthly discharge only); October 1904 to September 1905 and November to December 1906 (gage heights only); August 1907 to May 1926 (monthly discharge only); June 1926 to September 1927; October 1927 to September 1932 (monthly discharge only); August 1958 to current year. Published as "near Snoqualmie Falls" 1904-06.

GAGE.--Water-stage recorder. Elevation of gage is 120 ft, from river-profile map. Prior to Nov. 3, 1902, and Nov. 1 to Dec. 31, 1906, nonrecording gages upstream and downstream from Snoqualmie Falls at different datum. Nov. 3, 1902, to Sept. 30, 1905, nonrecording gage at site 4 mi upstream and 300 ft downstream from South Fork, at different datum.

REMARKS.--Estimated daily discharges: Dec. 3 to Jan. 1, Feb. 8-11, July 1 to Aug. 2. Records good except for estimated daily discharges, which are fair. Medium and low flows affected by powerplant 0.1 mi upstream from station.

AVERAGE DISCHARGE.--55 years (water years 1899, 1903-04, 1908-32, 1959-85), 2,594 ft³/s, 93.94 in/yr, 1,879,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,000 ft³/s Nov. 23, 1959, gage height, 19.78 ft; minimum, 9.7 ft³/s Aug. 14, 27, 1958, gage height, -0.53 ft; minimum daily, 88 ft³/s Aug. 8, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ft³/s June 7, gage height, 12.82 ft; minimum, 220 ft³/s Aug. 24, gage height, 2.45 ft; minimum daily, 333 ft³/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	491	1380	2110	1580	1010	1780	4990	3740	4850	1780	599	386
2	473	3820	1780	1500	955	1630	4830	4890	4180	1990	595	404
3	477	6410	1530	1450	864	1480	5630	5670	3830	2240	633	382
4	471	6370	1370	1470	802	1420	4160	4440	5190	2210	587	354
5	549	4160	1260	1450	882	1340	3310	3750	4610	2110	568	468
6	497	3080	1130	1440	854	1240	2960	3180	3940	1740	519	2600
7	479	3630	1370	1440	844	1170	3170	2860	12100	1630	540	1880
8	455	2830	5370	1430	806	1120	3820	2680	11600	1670	644	1150
9	641	2490	3790	1350	784	1080	4650	2480	6050	1740	664	923
10	767	2360	2690	1250	830	1070	5790	2570	4630	1700	690	907
11	1030	4450	2160	1180	1030	1050	5600	2720	4210	1510	661	877
12	1150	3800	2040	1130	1510	1050	6860	2320	4710	1390	579	755
13	3230	3720	1910	1090	1190	1030	5710	2170	4540	1260	533	703
14	2210	3880	3010	1150	1030	1040	5420	2780	4810	1150	505	673
15	1680	2730	4340	1890	1710	1050	5070	2730	5510	1110	483	643
16	1280	2220	2810	1740	1490	1090	6290	3800	4170	1040	469	647
17	1080	1920	2320	1950	1260	1260	4850	5800	3720	1010	447	1470
18	931	2000	1870	2180	1150	1370	3860	6470	4260	996	434	1460
19	843	3100	1650	2040	1150	1370	3360	5850	4510	954	423	1040
20	759	3280	1540	2340	1330	1400	2860	4760	4170	900	414	841
21	705	2550	1440	2190	1380	1440	2490	4230	3500	918	404	732
22	658	2080	2860	1910	2900	1380	2250	5180	3190	830	393	671
23	637	2130	5790	1730	2820	1540	2540	6270	2860	810	379	602
24	638	2440	3740	1610	4010	1570	2310	6310	2350	780	370	556
25	3510	2000	2660	1500	3720	1390	2220	6510	2020	741	363	529
26	3690	1770	2370	1390	2590	1260	2120	5170	2110	682	365	496
27	2520	1930	2200	1300	2110	1190	5990	4420	2310	646	355	477
28	2250	2450	1930	1230	1870	1130	8190	3940	2070	607	346	453
29	1850	3120	1870	1160	---	1180	4720	3860	2100	615	333	425
30	1600	2590	2120	1070	---	2380	3800	6150	1940	591	344	401
31	1530	---	1820	1030	---	5080	---	4680	---	595	394	---
TOTAL	39081	90690	74850	47170	42961	44580	129820	132380	130040	37945	15033	23905
MEAN	1261	3023	2415	1522	1534	1438	4327	4270	4335	1224	485	797
MAX	3690	6410	5790	2340	4010	5080	8190	6510	12100	2240	690	2600
MIN	455	1380	1130	1030	784	1030	2120	2170	1940	591	333	354
CFSM	3.36	8.06	6.44	4.06	4.09	3.83	11.5	11.4	11.6	3.26	1.29	2.13
IN.	3.88	9.00	7.43	4.68	4.26	4.42	12.88	13.13	12.90	3.76	1.49	2.37
AC-FT	77520	179900	148500	93560	85210	88420	257500	262600	257900	75260	29820	47420

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CAL YR 1984   TOTAL   979726   MEAN   2677   MAX   29300   MIN   455   CFSM   7.14   IN.   97.19   AC-FT   1943000
WTR YR 1985   TOTAL   808455   MEAN   2215   MAX   12100   MIN   333   CFSM   5.91   IN.   80.20   AC-FT   1604000
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12145500 RAGING RIVER NEAR FALL CITY, WA

LOCATION.--Lat 47°32'24", long 121°54'28", on west line sec.27, T.24 N., R.7 E., King County, Hydrologic Unit 17110010, on right bank at highway bridge 2.0 mi southwest of Fall City, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--30.6 mi².

PERIOD OF RECORD.--July 1945 to September 1950, water years 1951, and 1953-63 (annual maximum), December 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft, from topographic map. Prior to Oct. 1, 1950, water-stage recorder on left bank at present site and datum. August 1951 and January 1953 to February 1963, crest-stage gage only on left bank at present site and datum.

REMARKS.--Estimated daily discharges: Feb. 4-6. Records good. Some small diversions for irrigation and domestic use upstream from station. No regulation.

AVERAGE DISCHARGE.--24 years (water years 1946-50, 1965-72, 1975-85), 137 ft³/s, 60.80 in/yr, 99,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,960 ft³/s Jan. 24, 1984, gage height, 5.74 ft; maximum gage height, 6.75 ft Feb. 9, 1951; minimum daily discharge, 4.4 ft³/s Aug. 21, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 14	1900	*676	*3.36				

Minimum discharge, 9.0 ft³/s on Aug. 25-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	65	240	177	46	113	281	142	94	24	16	10
2	10	320	181	147	43	101	226	121	93	22	15	9.8
3	10	372	141	146	40	90	289	140	77	20	14	9.5
4	11	378	114	149	36	108	245	128	81	19	12	9.7
5	12	229	97	141	37	104	204	113	70	18	12	14
6	11	162	84	133	38	93	171	98	89	18	11	24
7	11	153	102	136	47	83	148	88	440	18	12	24
8	11	127	399	121	41	75	131	77	298	17	19	28
9	15	140	310	104	39	71	120	70	192	16	13	25
10	24	164	248	94	67	66	113	79	140	15	18	20
11	24	336	191	82	161	62	119	75	109	15	14	16
12	31	224	187	74	165	59	115	65	91	14	12	15
13	58	264	175	69	120	56	101	61	82	14	12	14
14	29	259	371	71	144	53	93	101	102	14	11	13
15	23	181	406	87	214	51	89	78	102	13	11	13
16	19	137	266	80	162	51	89	67	79	13	10	15
17	17	110	202	80	129	53	78	59	70	13	9.8	48
18	15	147	159	77	108	51	89	55	60	13	9.7	28
19	14	184	132	73	122	49	124	50	51	12	9.8	19
20	14	272	115	136	148	62	119	47	45	12	10	16
21	13	226	111	115	208	66	105	44	41	12	10	15
22	13	172	340	96	362	78	113	41	38	12	9.9	14
23	13	249	356	84	275	169	163	38	37	12	9.7	13
24	13	247	276	74	264	167	142	38	36	12	9.4	13
25	20	185	211	67	212	138	150	110	33	12	9.3	12
26	27	149	179	62	168	118	168	65	30	12	9.3	12
27	41	216	190	59	138	113	305	55	29	11	9.2	11
28	58	356	154	56	119	102	337	51	27	11	9.3	11
29	44	376	165	52	---	103	228	96	25	11	9.3	11
30	48	369	319	48	---	353	176	185	25	11	9.7	11
31	43	---	230	45	---	401	---	121	---	12	11	---
TOTAL	702	6769	6651	2935	3653	3259	4831	2558	2686	448	357.4	494.0
MEAN	22.6	226	215	94.7	130	105	161	82.5	89.5	14.5	11.5	16.5
MAX	58	378	406	177	362	401	337	185	440	24	19	48
MIN	10	65	84	45	36	45	78	38	25	11	9.2	9.5
CFSM	.74	7.39	7.03	3.09	4.25	3.43	5.26	2.70	2.92	.47	.38	.54
IN.	.85	8.23	8.09	3.57	4.44	3.96	5.87	3.11	3.27	.54	.43	.60
AC-FT	1390	13430	13190	5820	7250	6460	9580	5070	5330	889	709	980

CAL YR 1934 TOTAL 47300.8 MEAN 129 MAX 1780 MIN 9.8 CFSM 4.22 IN. 57.50 AC-FT 93820
WTR YR 1985 TOTAL 35343.4 MEAN 96.8 MAX 440 MIN 9.2 CFSM 3.16 IN. 42.97 AC-FT 70100

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°42'45", long 121°47'15", in SW¼NE¼ sec.28, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.9 mi upstream from confluence with South Fork, 7.4 mi northeast of Carnation, and at mile 11.7.

DRAINAGE AREA.--39.9 mi².

PERIOD OF RECORD.--October 1952 to December 1963, November 1967 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 600 ft, from river-profile map.

REMARKS.--Estimated daily discharges: Oct. 1-16. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--28 years (water years 1953-63, 1969-85), 362 ft³/s, 123.21 in/yr, 262,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,560 ft³/s Dec. 15, 1959, gage height, 13.15 ft, from rating curve extended above 2,800 ft³/s; minimum, 38 ft³/s Sept. 13, 14, 1958, minimum gage height, 3.36 ft Sept. 25, 26, 27, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 25	1300	*2,680	*8.48				

Minimum discharge, 54 ft³/s Aug. 29, 30, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	241	361	244	172	262	896	517	436	174	89	57
2	86	1150	309	236	166	234	728	626	373	189	87	63
3	86	1160	275	246	155	219	762	727	358	190	86	58
4	92	839	254	251	149	213	482	528	513	183	82	55
5	96	493	238	251	153	204	433	491	411	172	80	171
6	92	456	226	250	148	193	418	423	398	157	76	594
7	88	567	449	254	145	183	458	372	1770	153	78	237
8	94	381	1310	250	140	177	525	337	1110	154	98	159
9	125	378	554	232	137	174	653	325	596	153	99	131
10	175	411	389	219	137	173	703	386	471	149	111	112
11	187	1110	320	210	166	171	866	365	428	139	90	97
12	280	591	298	204	229	169	879	312	441	134	81	91
13	392	595	273	201	167	165	695	311	388	128	76	87
14	440	550	669	240	169	166	625	595	609	124	73	81
15	280	390	576	445	258	167	579	443	492	122	71	78
16	158	321	377	320	202	178	859	641	359	118	69	174
17	138	288	314	356	176	205	533	726	347	115	67	539
18	124	524	273	402	165	206	473	648	371	114	66	210
19	114	709	255	353	175	200	389	530	354	111	65	143
20	104	676	245	562	189	221	336	434	309	107	64	115
21	97	401	238	391	342	220	302	423	273	105	63	104
22	93	315	787	318	788	192	297	539	258	101	62	96
23	90	492	969	288	552	225	370	592	230	99	60	88
24	92	447	531	269	898	224	329	557	213	97	59	82
25	1040	336	405	248	540	192	305	528	196	94	58	78
26	489	291	362	228	361	177	383	425	208	92	57	74
27	347	298	324	216	295	171	1500	378	212	90	56	71
28	379	695	294	207	275	163	908	340	186	88	55	68
29	247	647	281	195	---	163	537	449	191	87	55	66
30	233	467	290	181	---	770	456	798	175	86	55	64
31	202	---	261	176	---	960	---	468	---	86	59	---
TOTAL	6544	16219	12707	8443	7449	7337	17679	15234	12676	3911	2249	4043
MEAN	211	541	410	272	266	237	589	491	423	126	72.5	135
MAX	1040	1160	1310	562	898	960	1500	798	1770	190	111	594
MIN	84	241	226	176	137	163	297	311	175	86	55	55
CFSM	5.29	13.6	10.3	6.82	6.67	5.94	14.8	12.3	10.6	3.16	1.82	3.38
IN.	6.10	15.12	11.85	7.87	6.94	6.84	16.48	14.20	11.82	3.65	2.10	3.77
AC-FT	12980	32170	25200	16750	14780	14550	35070	30220	25140	7760	4460	8020

CAL YR 1984 TOTAL 137051 MEAN 374 MAX 3300 MIN 73 CFSM 9.37 IN. 127.78 AC-FT 271800
WTR YR 1985 TOTAL 114491 MEAN 314 MAX 1770 MIN 55 CFSM 7.87 IN. 106.74 AC-FT 227100

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA

LOCATION.--Lat 47°42'25", long 121°35'56", in NE¼SW¼ sec.25, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Phelps Creek, 8.1 mi south of Index, and at mile 12.9.

DRAINAGE AREA.--5.34 mi².

PERIOD OF RECORD.--December 1959 to December 1963, November 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,850 ft, from topographic map. Prior to Oct. 1, 1961, at datum 0.85 ft higher.

REMARKS.--Estimated daily discharges: Nov. 2 to Mar. 29. Records good except those for period of no gage-height record Nov. 2 to March 29, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--20 years (water years 1961-63, 1969-85), 55.5 ft³/s, 141.14 in/yr, 40,210 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,190 ft³/s Jan. 23, 1982; maximum gage height, 7.13 ft, present datum, Dec. 14, 1959; minimum daily discharge, 2.3 ft³/s Aug. 28-30, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 25	1145	550	3.16	June 7	1845	650	3.36
Apr. 27	1845	*665	*3.39				

Minimum discharge, 3.9 ft³/s Aug. 29, 30, gage height, 0.45 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	23	48	28	18	29	181	71	109	33	9.9	6.2
2	8.2	145	40	27	17	25	130	108	83	44	11	7.8
3	7.8	150	36	28	16	22	148	153	71	45	9.6	5.8
4	9.9	130	32	28	16	21	72	87	125	44	8.8	5.0
5	9.9	76	30	29	16	20	63	77	108	37	8.2	58
6	8.3	60	28	29	15	19	61	64	85	31	7.6	183
7	7.9	76	50	29	15	18	70	54	370	31	8.2	64
8	9.0	50	160	28	15	17	87	47	379	34	14	35
9	20	50	66	26	14	16	122	43	129	35	13	26
10	29	54	46	25	14	16	138	50	83	31	14	22
11	36	140	40	24	17	16	189	58	74	28	10	18
12	76	78	36	23	22	16	196	45	87	25	8.7	16
13	105	76	34	23	16	15	131	41	78	22	7.9	15
14	74	72	78	28	17	15	115	65	143	20	7.4	13
15	43	54	72	46	25	16	111	62	123	20	7.2	14
16	31	42	46	36	19	17	154	99	75	19	6.7	29
17	24	36	38	40	17	20	90	170	75	18	6.2	95
18	20	60	34	44	15	20	66	173	90	18	5.9	44
19	17	86	32	40	16	19	52	132	88	17	5.9	27
20	15	82	30	58	17	21	43	93	70	17	5.7	20
21	14	54	29	48	36	21	38	81	60	15	5.3	18
22	13	40	96	36	96	18	36	114	56	14	4.9	15
23	12	64	110	32	66	22	45	155	45	14	4.6	13
24	14	58	68	30	120	22	35	157	36	13	4.6	12
25	245	42	46	27	90	18	32	143	31	12	4.8	11
26	88	36	40	25	60	16	48	104	39	11	4.7	10
27	56	38	37	24	46	15	391	80	43	11	4.5	9.2
28	54	88	34	22	35	14	219	73	34	9.9	4.3	8.5
29	35	84	32	21	---	14	82	67	37	9.9	4.0	7.9
30	36	64	33	19	---	116	64	157	32	9.9	4.6	7.5
31	27	---	30	18	---	175	---	113	---	9.5	7.0	---
TOTAL	1153.6	2108	1531	941	886	829	3209	2936	2858	698.2	229.2	815.9
MEAN	37.2	70.3	49.4	30.4	31.6	26.7	107	94.7	95.3	22.5	7.39	27.2
MAX	245	150	160	58	120	175	391	173	379	45	14	183
MIN	7.8	23	28	18	14	14	32	41	31	9.5	4.0	5.0
CFSM	6.97	13.2	9.25	5.69	5.92	5.00	20.0	17.7	17.8	4.21	1.38	5.09
IN.	8.04	14.68	10.67	6.56	6.17	5.78	22.35	20.45	19.91	4.86	1.60	5.68
AC-FT	2290	4180	3040	1870	1760	1640	6370	5820	5670	1380	455	1620

CAL YR 1984 TOTAL 21704.9 MEAN 59.3 MAX 753 MIN 4.5 CFSM 11.1 IN. 151.20 AC-FT 43050
WTR YR 1985 TOTAL 18194.9 MEAN 49.8 MAX 391 MIN 4.0 CFSM 9.33 IN. 126.75 AC-FT 36090

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'22", long 121°42'44", in SW¼SW¼ sec.31, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.1 mi upstream from private road bridge, 1.6 mi downstream from South Fork Tolt Reservoir, 9.8 mi northeast of Carnation, and at mile 6.8.

DRAINAGE AREA.--19.7 mi².

PERIOD OF RECORD.--October 1952 to December 1963, June 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,300 ft, from river-profile map.

REMARKS.--No estimated daily discharges. Records good. Regulation by South Fork Tolt Reservoir since September 1963, capacity, 57,830 acre-ft. During the current water year the Seattle Water Department diverted an average daily discharge of about 79 ft³/s upstream from the station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1953-63), 198 ft³/s, 143,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,500 ft³/s Dec. 15, 1959, gage height, 7.45 ft, from rating curve extended above 2,700 ft³/s; maximum gage height, 7.62 ft Nov. 20, 1958, backwater from debris; minimum discharge, 8.4 ft³/s Sept. 12, 1963, minimum gage height, 0.81 ft Aug. 23-27, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft³/s June 7, gage height, 4.44 ft; minimum, 39 ft³/s July 7, 8, gage height, 2.03 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	61	73	67	57	64	67	142	147	41	42	44
2	57	71	71	66	57	63	66	154	110	40	42	45
3	57	72	70	67	57	63	66	227	87	40	42	48
4	57	69	70	66	60	83	63	217	104	40	42	50
5	57	67	69	66	57	63	62	221	116	40	41	53
6	57	66	69	67	57	63	62	172	338	40	41	57
7	57	66	72	67	57	62	62	136	744	40	41	52
8	58	66	82	66	57	62	63	116	872	41	41	51
9	58	65	73	66	56	62	63	101	505	42	41	51
10	60	69	72	66	57	62	63	100	250	42	41	51
11	59	74	193	66	60	62	66	102	152	42	41	51
12	62	70	341	66	57	57	66	84	87	42	41	51
13	62	73	472	66	57	56	62	75	86	41	40	50
14	64	72	407	65	59	57	62	96	261	41	42	50
15	61	69	74	74	58	57	66	98	444	41	43	51
16	60	67	76	72	57	56	66	121	216	41	43	52
17	59	67	76	72	57	56	62	185	61	41	43	55
18	59	70	278	64	57	56	62	221	41	41	43	51
19	59	71	303	58	59	56	62	188	41	41	43	51
20	58	72	83	64	59	56	62	139	40	41	43	51
21	57	69	83	60	66	57	61	108	40	41	43	51
22	57	69	84	58	74	59	61	109	40	40	43	50
23	57	73	86	57	69	62	62	135	43	40	43	50
24	57	70	76	57	76	59	61	151	44	40	43	50
25	63	69	75	56	68	59	60	151	42	40	43	50
26	64	68	75	54	66	59	62	125	42	41	43	50
27	64	199	323	54	66	59	207	96	42	42	43	50
28	63	439	340	54	64	57	535	81	41	42	43	50
29	62	522	70	55	---	56	348	94	41	42	43	50
30	62	349	72	56	---	76	196	191	41	42	43	50
31	62	---	67	57	---	66	---	171	---	42	43	---
TOTAL	1842	3304	4375	1949	1701	1885	2926	4307	5118	1270	1309	1516
MEAN	59.4	110	141	62.9	60.8	60.8	97.5	139	171	41.0	42.2	50.5
MAX	64	522	472	74	76	83	535	227	872	42	43	57
MIN	53	61	67	54	56	56	60	75	40	40	40	44
AC-FT	3650	6550	8680	3870	3370	3740	5800	8540	10150	2520	2600	3010

CAL YR 1984	TOTAL	45068	MEAN	123	MAX	752	MIN	38	AC-FT	89390
WTR YR 1985	TOTAL	31502	MEAN	86.3	MAX	872	MIN	40	AC-FT	62480

12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA

LOCATION.--Lat 47°41'49", long 121°47'10", in SW¼NE¼ sec.33, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.1 mi upstream from mouth and 6.5 mi northeast of Carnation.

DRAINAGE AREA.--29.6 mi².

PERIOD OF RECORD.--March 1982 to current year. Published as "South Fork Tolt River below regulating pond, near Carnation" March 1982 through September 1983.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 670 ft, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 19 to Feb. 14, Apr. 24 to June 18. Records good except for estimated daily discharges, which are fair. Flow regulated by South Fork Tolt Reservoir 6.1 mi upstream, capacity, 57,830 acre-ft. During the 1985 water year the Seattle Water Department diverted an average daily discharge of about 79 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft³/s Jan. 25, 1984, gage height, 6.30 ft; minimum, 36 ft³/s Aug. 28, 29, 1982, gage height, 2.75 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown June 8, gage height, unknown; minimum, 52 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	85	170	130	88	114	143	230	210	64	62	58
2	64	133	150	125	88	108	132	215	164	62	62	58
3	64	154	137	125	85	104	136	320	132	61	62	58
4	66	147	127	122	91	129	120	310	159	60	62	61
5	66	128	121	121	87	102	113	315	170	60	62	71
6	66	116	116	121	87	99	107	260	375	60	62	86
7	66	119	119	122	87	96	106	213	900	58	62	78
8	67	112	197	120	85	92	105	190	1120	58	62	77
9	68	113	160	118	82	91	106	156	710	58	62	75
10	69	112	150	115	84	89	109	159	420	58	58	75
11	69	158	247	112	89	88	121	161	250	58	56	74
12	73	137	426	109	85	81	127	140	140	58	54	73
13	76	143	545	106	83	77	115	118	140	58	54	73
14	84	176	540	114	84	77	110	159	280	58	53	71
15	79	146	174	124	85	77	108	158	560	57	57	71
16	74	132	155	119	83	76	126	180	290	57	58	71
17	73	121	142	121	81	75	112	253	150	57	58	82
18	72	125	387	107	79	74	110	300	74	56	58	81
19	70	133	405	89	85	74	109	270	74	56	58	78
20	68	152	119	100	93	76	107	205	74	56	58	77
21	68	131	117	91	111	78	103	163	72	59	58	77
22	67	123	201	89	200	77	103	161	70	59	58	75
23	67	137	255	87	169	88	108	190	69	59	58	73
24	68	142	204	85	200	86	99	210	71	59	58	73
25	83	128	178	83	169	84	95	214	72	59	58	73
26	92	122	165	81	145	81	100	190	68	60	58	73
27	90	217	437	80	129	81	300	150	68	62	58	73
28	90	537	437	80	119	79	610	125	68	62	58	73
29	86	680	142	82	---	81	500	138	65	62	58	73
30	86	560	149	84	---	143	320	261	65	62	58	73
31	83	---	136	87	---	153	---	235	---	62	58	---
TOTAL	2271	5419	7008	3249	2953	2830	4660	6349	7080	1835	1818	2184
MEAN	73.3	181	226	105	105	91.3	155	205	236	59.2	58.6	72.8
MAX	92	680	545	130	200	153	610	320	1120	64	62	86
MIN	57	85	116	80	79	74	95	118	65	56	53	58
AC-FT	4500	10750	13900	6440	5860	5610	9240	12590	14040	3640	3610	4330

CAL YR 1984	TOTAL	65131	MEAN	178	MAX	1060	MIN	42	AC-FT	129200
WTR YR 1985	TOTAL	47656	MEAN	131	MAX	1120	MIN	53	AC-FT	94530

12148500 TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'45", long 121°49'22", in SE¼NE¼ sec.31, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 500 ft downstream from the forks, 0.4 mi upstream from Stossel Creek, 5.5 mi northeast of Carnation, and at mile 8.7.

DRAINAGE AREA.--81.4 mi².

PERIOD OF RECORD.--August 1928 to January 1932, September 1937 to current year. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1286: 1929(M), 1930, 1938(M), 1939, 1943(M), 1945(M), 1951(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 348 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Oct. 31, 1928, nonrecording gage, and Oct. 31, 1928 to Jan. 3, 1932, water-stage recorder at site 350 ft upstream at datum 7.1 ft higher (river-profile survey). Sept. 1 to Oct. 6, 1937, nonrecording gage at present site at datum 1.64 ft higher.

REMARKS.--No estimated daily discharges. Records good. Some regulation by South Fork Reservoir, capacity, 57,830 acre-ft. During the current water year city of Seattle Water Department diverted an average daily discharge of about 79 ft³/s upstream from station for municipal use. Chemical analyses July 1960 to September 1970.

AVERAGE DISCHARGE.--51 years (water years 1929-31, 1938-85), 591 ft³/s, 428,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft³/s Dec. 15, 1959, gage height, 13.04 ft; minimum, 53 ft³/s Sept. 22, 23, 1951, gage height, 3.84 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1930	*3,250	*8.40				

Minimum discharge, 105 ft³/s Aug. 28-30, gage height, 4.20 ft.

DISCHARGE, IN CUBIC FEET PER SECOND. WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	340	629	450	284	433	1030	738	667	250	155	110
2	131	1270	554	425	273	399	865	830	571	260	142	117
3	130	1320	507	427	261	367	901	999	536	263	139	116
4	139	971	464	425	258	381	644	825	677	256	135	122
5	148	646	425	424	257	344	581	812	601	243	133	217
6	137	588	398	420	252	328	558	699	781	222	129	637
7	132	586	579	428	250	314	589	614	2560	216	130	311
8	135	517	1550	418	242	302	637	548	2190	219	149	232
9	193	521	794	396	237	295	743	511	1310	218	153	201
10	243	559	630	377	240	290	797	561	857	212	172	179
11	256	1250	643	363	282	286	931	561	727	202	143	162
12	353	745	782	346	358	278	982	479	630	195	132	154
13	467	784	869	338	287	266	787	449	595	187	127	150
14	514	836	1260	374	263	267	729	769	894	182	125	142
15	342	620	874	596	386	266	678	630	987	180	123	140
16	260	537	656	482	325	276	936	806	684	176	120	216
17	227	481	560	509	294	303	644	943	481	171	118	588
18	209	647	698	550	277	304	590	914	457	169	117	290
19	196	823	731	492	295	297	529	781	432	166	116	215
20	186	836	429	718	333	319	487	649	388	162	115	182
21	182	580	408	565	477	324	445	603	351	158	115	169
22	170	506	976	482	1070	304	441	697	335	155	114	160
23	168	666	1330	437	825	367	516	765	310	154	112	151
24	172	655	867	411	1150	348	480	759	296	155	111	144
25	1070	549	683	381	803	308	449	737	269	147	110	139
26	590	494	622	355	594	289	507	616	284	145	109	136
27	455	594	782	338	502	283	1650	542	291	144	108	132
28	487	1220	839	329	460	273	1500	494	261	142	107	129
29	362	1410	501	309	---	277	968	608	269	140	106	127
30	344	1050	544	294	---	879	763	1030	254	139	108	125
31	315	---	495	288	---	1140	---	724	---	146	111	---
TOTAL	8838	22701	22079	13147	11555	11107	22357	21693	19945	5774	3884	5893
MEAN	285	757	712	424	413	358	745	700	665	186	125	196
MAX	1070	1410	1550	718	1150	1140	1650	1030	2560	263	172	637
MIN	125	340	398	288	237	266	441	449	254	139	106	110
AC-FT	17530	45030	43790	26080	22920	22030	44350	43030	39560	11450	7700	11690

CAL YR 1984	TOTAL	213943	MEAN	585	MAX	4350	MIN	116	AC-FT	424400
WTR YR 1985	TOTAL	168973	MEAN	463	MAX	2560	MIN	106	AC-FT	335200

12149000 SNOQUALMIE RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°39'58", long 121°55'27", in NW¼SW¼ sec.9, T.25 N., R.7 E., King County, Hydrologic Unit 17110010, on left bank 40 ft downstream from highway bridge, 1.3 mi northwest of Carnation, 1.9 mi downstream from Tolt River, and at mile 23.0.

DRAINAGE AREA.--603 mi².

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1316: 1932-33(M). WSP 1446: 1934(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 20, 1933, nonrecording gage on old bridge, 100 ft upstream and Dec. 20, 1933, to Sept. 30, 1939, water-stage recorder at present site, at datum 42.96 ft higher.

REMARKS.--No estimated daily discharges. Records good. During the 1985 water year, Seattle Water Department diverted an average daily discharge of 74 ft³/s upstream from station for municipal use. Several small diversions for irrigation and domestic use upstream from station. Low flow diverted for operation of powerplant at Snoqualmie Falls but returned to river upstream from station. Some pondage at Snoqualmie Falls and some diurnal fluctuation caused by powerplant.

AVERAGE DISCHARGE.--57 years, 3,772 ft³/s, 84.95 in/yr, 2,733,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,500 ft³/s Feb. 27, 1932, elevation, 59.88 ft, from graph based on gage readings; maximum elevation observed, 59.93 ft Nov. 13, 1932; minimum discharge, 239 ft³/s Aug. 21, 1945, but may have been less sometime during period of faulty intake action Sept. 13 or 14, 1949; minimum daily discharge, 396 ft³/s Sept. 24, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Elevation (ft)	Date	Time	Discharge (ft³/s)	Elevation (ft)
June 8	0900	*18,500	*53.58	No other peak greater than base discharge.			

Minimum discharge, 530 ft³/s Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	775	1830	3800	2800	1520	2700	6760	4980	5980	2220	972	654
2	769	4700	3090	2540	1470	2530	6570	6120	5350	2320	956	651
3	753	8150	2640	2420	1380	2300	7140	7080	4750	2580	935	652
4	755	8180	2360	2400	1270	2240	5990	5980	6010	2520	886	625
5	821	6040	2150	2340	1350	2150	4810	5260	5800	2490	864	659
6	821	4290	1990	2300	1320	2010	4300	4510	5120	2160	830	2840
7	777	4850	2060	2280	1330	1890	4320	4020	11000	2000	807	2520
8	748	4040	6890	2250	1290	1790	4890	3670	16500	2000	891	1660
9	889	3450	6260	2130	1250	1720	5690	3350	9020	2040	975	1330
10	1140	3220	4530	1990	1300	1690	6950	3400	6560	2030	987	1240
11	1400	6170	3640	1880	1650	1660	6840	3750	5700	1860	1000	1220
12	1500	5510	3620	1790	2290	1640	8110	3150	5850	1740	890	1090
13	3690	5210	3650	1730	1950	1610	7100	2880	5770	1640	822	1030
14	3020	6300	4810	1750	1720	1590	6760	3860	5910	1530	786	986
15	2310	4570	7130	2510	2360	1600	6270	3840	7060	1470	772	946
16	1760	3520	5050	2540	2290	1620	7330	4590	5600	1430	762	943
17	1490	2910	3990	2550	1960	1760	6270	6780	4630	1380	741	1890
18	1330	2870	3420	2910	1780	1890	5060	7550	5040	1360	737	2000
19	1220	4470	3180	2790	1710	1920	4530	7070	5360	1310	717	1460
20	1140	5040	2580	3270	2000	1940	4030	5980	5050	1270	702	1220
21	1090	4080	2450	3280	2130	2020	3470	5270	4290	1220	681	1080
22	1050	3200	4010	2760	4690	1980	3110	6010	3870	1180	660	1010
23	1020	3170	7820	2510	4710	2160	3500	7100	3510	1150	642	940
24	1000	4110	6110	2340	5660	2430	3260	7290	2930	1140	624	885
25	3500	3210	4530	2180	5900	2150	3200	7410	2510	1080	619	847
26	5130	2760	3860	2030	4220	1960	2990	6440	2510	1030	614	825
27	3400	3040	3750	1900	3350	1850	6470	5460	2700	994	609	804
28	2910	4470	3640	1810	2890	1780	10500	4920	2510	951	598	775
29	2490	5980	3010	1720	---	1860	6760	4630	2480	925	585	744
30	2100	5280	3700	1620	---	3070	5370	7330	2360	916	580	724
31	2090	---	3320	1550	---	7030	---	6100	---	940	634	---
TOTAL	52888	134620	123040	70870	66740	66540	168350	165780	161730	48876	23878	34250
MEAN	1706	4487	3969	2286	2384	2146	5612	5348	5391	1577	770	1142
MAX	5130	8180	7820	3280	5900	7030	10500	7550	16500	2580	1000	2840
MIN	748	1830	1990	1550	1250	1590	2990	2880	2360	916	580	625
CFSM	2.83	7.44	6.58	3.79	3.95	3.56	9.31	8.87	8.94	2.62	1.28	1.89
IN.	3.26	8.30	7.59	4.37	4.12	4.10	10.39	10.23	9.98	3.02	1.47	2.11
AC-FT	104900	267000	244000	140600	132400	132000	333900	328800	320800	96950	47360	67930

CAL YR 1984	TOTAL	1397711	MEAN	3819	MAX	35200	MIN	748	CFSM 6.33	IN. 86.23	AC-FT	2772000
WTR YR 1985	TOTAL	1117562	MEAN	3062	MAX	16500	MIN	580	CFSM 5.08	IN. 68.94	AC-FT	2217000

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12150800 SNOHOMISH RIVER NEAR MONROE, WA
(National stream quality accounting network station)

LOCATION.--Lat 47°49'52", long 122°02'50", in NE¼NW¼ sec.16, T.27 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on left bank 150 ft upstream from State Highway 522 bridge, 0.1 mi downstream from confluence of Snoqualmie and Skykomish Rivers, 3.6 mi southwest of Monroe, and 6.0 mi south of Snohomish.

DRAINAGE AREA.--1,537 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1963 to current year. Water years 1932, 1934, 1951, 1960, 1962-63 (annual maximum stage only) published in WSP 1932. Approximate annual maximum stages for water years 1921, 1949-50, 1952-59, and 1961 are on file in Washington office.

GAGE.--Water-stage recorder. Datum of gage is 13.25 ft above National Geodetic Vertical Datum of 1929. Prior to February 1963, crest-stage gage only at site about 800 ft downstream and Feb. 8, 1963, to May 27, 1964, water-stage recorder at site 100 ft upstream, both National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-26, Dec. 25 to Jan. 2. Water-discharge records good except for estimated daily discharges, which are fair. Some regulation by powerplant at Snoqualmie Falls, 40 mi upstream, and by Spada Lake, 30 mi upstream. Minor diversions for irrigation returned to river upstream from gage. During the current water year, City of Seattle Water Department diverted an average daily discharge of about 79 ft³/s upstream from station from South Fork Tolt River for municipal use and the City of Everett diverted an undetermined amount of discharge upstream from the station from Sultan River for municipal use.

AVERAGE DISCHARGE.--22 years, 9,788 ft³/s, 86.48 in/yr, 7,091,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.8 ft Feb. 10, 1951, datum then in use (discharge not determined); maximum discharge since February 1963, 115,000 ft³/s Dec. 4, 1975, gage height, 22.92 ft; minimum, 1,140 ft³/s Sept. 29, 1967, Sept. 17, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1921 reached a discharge of approximately 180,000 ft³/s. Floods in November or December 1897 and November 1906 are believed to be higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 33,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 8	0600	*47,100	*13.01	No other peak greater than base discharge.			

Minimum recorded discharge, 1,460 ft³/s Aug. 29, 30, gage height, 0.83 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1950	7410	9910	6200	3420	6410	15200	12400	15800	6930	2780	1630
2	1880	15500	7890	5800	3280	5790	15500	14800	14800	7300	2530	1620
3	1830	21500	6690	5560	3100	5270	16300	18300	13300	8130	2440	1620
4	1950	20000	5960	5400	2980	5470	14700	16900	16200	7890	2350	1560
5	2150	14100	5410	5140	2940	5080	12100	14400	16600	7600	2290	1750
6	2000	12000	4960	5010	2900	4770	10400	12400	14300	6720	2200	7770
7	1900	12800	7070	4920	2920	4540	9980	10900	28800	6070	2140	7590
8	1850	10700	19100	4870	2830	4220	10700	10100	43400	6110	2430	4680
9	1830	9690	14600	4670	2720	3880	12900	9170	30200	6410	2520	3410
10	2700	10300	11100	4410	2730	3700	16600	8940	21000	6390	2450	2990
11	3400	16400	9260	4190	3400	3830	18100	9270	17700	5890	2430	2870
12	3900	13800	9340	3960	4950	3820	22700	8330	17700	5490	2250	2620
13	8800	14100	8750	3800	4500	3790	20100	7650	17600	5080	2140	2470
14	7200	15500	16000	3800	3880	3620	18800	8860	16900	4710	2060	2410
15	6950	11900	14300	4780	4600	3620	17700	9320	19400	4420	2000	2370
16	5500	9720	10900	5310	5070	3540	20000	10800	16200	4320	1940	2360
17	4500	8360	8830	5070	4410	3850	18500	17000	13600	4130	1900	5700
18	3900	8240	7920	5910	3960	4300	14800	21300	14700	4040	1850	5400
19	3500	10400	6860	6220	3750	4530	12800	20800	16200	4170	1820	3910
20	3150	11800	6030	7060	4430	4620	11500	18200	15500	3990	1790	3130
21	2880	9940	6600	7790	4620	4820	10100	15800	13200	3470	1750	2790
22	2730	8500	14300	6950	7790	4680	9100	17300	12100	3370	1690	2570
23	2550	8770	13500	6330	9650	4840	8970	20800	11000	3310	1640	2410
24	2500	11200	9180	5710	10300	5500	9000	22300	9220	3240	1610	2290
25	9600	8790	8000	5330	13300	4940	8840	21400	7650	3110	1590	2180
26	10500	8000	7500	4910	9680	4490	8030	19100	7650	3010	1580	2110
27	7890	7830	6800	4500	7690	4260	13300	16500	8180	2880	1560	2040
28	7420	10500	6000	4410	6700	4110	27100	14900	7920	2770	1530	1960
29	6300	14800	5500	4040	---	4000	18700	13300	7470	2640	1500	1890
30	6300	13100	6400	3700	---	3840	14100	17000	7200	2700	1480	1840
31	5690	---	7000	3510	---	14500	---	16100	---	2730	1580	---
TOTAL	135200	355650	281660	159260	142500	150630	436620	454340	471490	149020	61820	89940
MEAN	4361	11860	9086	5137	5089	4859	14550	14660	15720	4807	1994	2998
MAX	10500	21500	19100	7790	13300	14500	27100	22300	43400	8130	2780	7770
MIN	1830	7410	4960	3510	2720	3540	8030	7650	7200	2640	1480	1560
CFSM	2.84	7.72	5.91	3.34	3.31	3.16	9.47	9.54	10.2	3.13	1.30	1.95
IN.	3.27	8.61	6.82	3.85	3.45	3.65	10.57	11.00	11.41	3.61	1.50	2.18
AC-FT	268200	705400	558700	315900	282600	298800	866000	901200	935200	295600	122600	178400

CAL YR 1984 TOTAL 3655400 MEAN 9987 MAX 62200 MIN 1830 CFSM 6.50 IN. 88.47 AC-FT 7250000
WTR YR 1985 TOTAL 2888130 MEAN 7913 MAX 43400 MIN 1480 CFSM 5.15 IN. 69.90 AC-FT 5729000

12150800 SNOHOMISH RIVER NEAR MONROE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1974 to January 1976, July 1979 to current year.

REMARKS.--Unpublished records of temperature and suspended-sediment concentration are available in the Washington Office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 27...	1110	7600	44	7.40	5.0	3.2	12.2	98	E260	E380	17
MAR 05...	1200	5220	49	7.20	5.5	1.5	12.1	96	E24	E13	19
MAY 14...	1430	9380	38	7.40	8.0	4.1	11.7	97	E180	380	14
AUG 21...	1200	1740	52	7.40	17.0	1.0	10.2	105	E65	E5	21

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 27...	2	5.0	1.0	1.9	19	0.2	0.7	15	3.9	1.6	<0.1
MAR 05...	4	5.6	1.2	2.4	21	0.2	0.5	15	4.0	1.7	<0.1
MAY 14...	4	4.4	0.8	1.5	18	0.2	0.7	10	4.1	1.3	<0.1
AUG 21...	--	6.1	1.3	2.3	--	0.2	<0.1	21	3.4	2.0	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV 27...	7.0	30	30	0.04	616	0.37	0.05	0.2	0.01	<0.01	<0.01
MAR 05...	7.8	32	32	0.04	451	0.34	0.03	0.3	0.01	0.01	0.01
MAY 14...	6.1	28	25	0.04	709	0.15	0.06	0.2	0.02	<0.01	0.01
AUG 21...	6.7	36	--	--	--	0.12	0.04	0.2	0.01	0.01	<0.01

E - Estimated value based on values reported by Denver Central Laboratory.

12150800 SNOHOMISH RIVER NEAR MONROE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV 27...	30	<1	12	<0.5	1	7	<3	6	60	6	<4
MAR 05...	20	<1	11	<0.5	<1	<1	<3	4	64	3	<4
MAY 14...	30	<1	13	<0.5	<1	<1	<3	5	51	<1	<4
AUG 21...	<10	1	9	<0.5	<1	<1	<3	2	64	7	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV 27...	9	<0.1	<10	3	<1	1	23	<6	26	6	123
MAR 05...	3	0.2	<10	2	<1	<1	24	<6	6	4	56
MAY 14...	5	<0.1	<10	1	<1	<1	18	<6	47	10	253
AUG 21...	11	<0.1	<10	6	<1	<1	26	<6	14	2	9.4

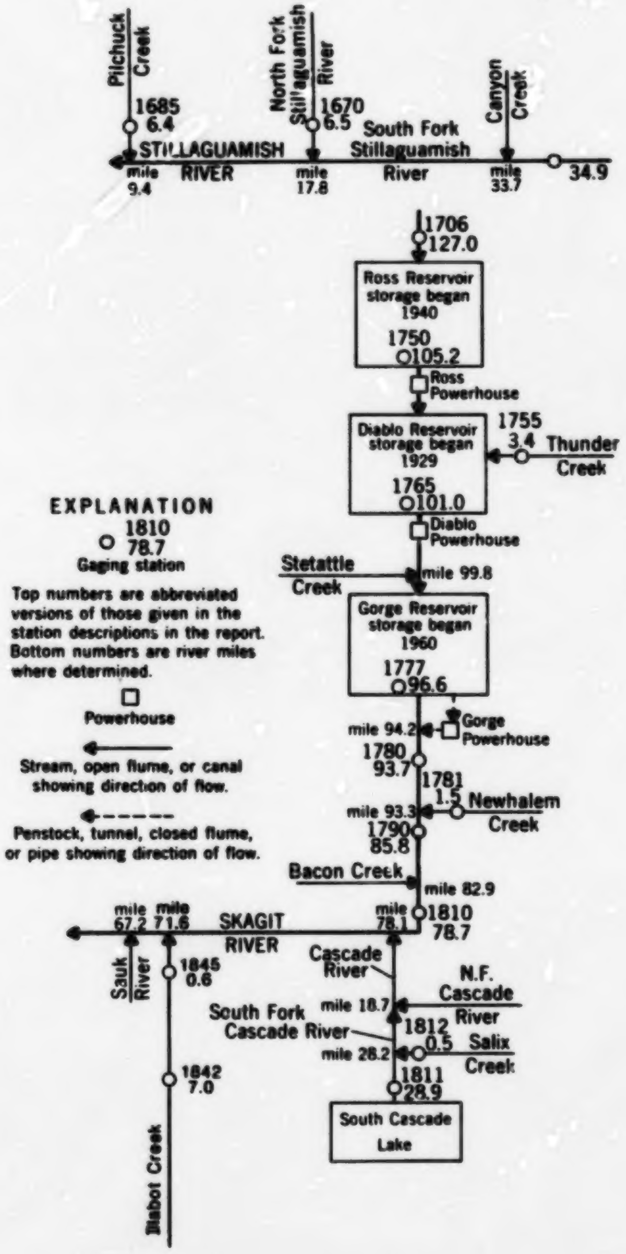
Pilchuck Creek
1685
6.4
North Fork Stillaguamish River
1670
6.5
Canyon Creek
South Fork Stillaguamish River
STILLAGUAMISH RIVER
mile 9.4
mile 17.8
mile 33.7
34.9
1706
127.0
Ross Reservoir storage began 1940
1750
105.2
Ross Powerhouse
Diablo Reservoir storage began 1929
1765
101.0
1755
3.4
Thunder Creek
Diablo Powerhouse
Stetattle Creek
mile 99.8
Gorge Reservoir storage began 1960
1777
96.6
mile 94.2
Gorge Powerhouse
1780
93.7
1781
1.5
Newhalem Creek
mile 93.3
1790
85.8
Bacon Creek
mile 82.9
mile 78.1
1810
78.7
mile 67.2
mile 71.6
SKAGIT RIVER
Sauk River
1845
0.6
1842
7.0
Illabot Creek
Cascade River
N.F. Cascade River
mile 18.7
South Fork Cascade River
1812
0.5
Salix Creek
mile 28.2
1811
28.9
South Cascade Lake
EXPLANATION
1810
78.7
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 16.--Gaging stations in Stillaguamish and Skagit River (above Sauk River) basins.

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12167000 NORTH FORK STILLAGUAMISH RIVER NEAR ARLINGTON, WA

LOCATION.--Lat 48°15'42", long 122°02'47", in SW¼NW¼ sec.16, T.32 N., R.6 E., Snohomish County, Hydrologic Unit 17110008, on right bank 5.7 mi southeast of Arlington, 7.8 mi downstream from Deer Creek, and at mile 6.5.

DRAINAGE AREA.--262 mi².

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1286: 1938-39. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 89.34 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records poor. No regulation. Small diversions for domestic use. National Weather Service radio telemeter at station. Chemical analyses November 1961 to September 1971, October 1973 to September 1974.

AVERAGE DISCHARGE.--57 years, 1,903 ft³/s, 98.64 in/yr, 1,379,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,300 ft³/s Dec. 3, 1982, gage height, 13.89 ft; minimum discharge, 117 ft³/s Sept. 23, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 8	0600	*18,500	*10.45	No other peak greater than base discharge.			

Minimum discharge, 276 ft³/s Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	448	910	2150	1050	964	1670	3320	2420	2110	582	404	330
2	440	5220	1770	1040	939	1440	3340	2870	1830	581	397	304
3	434	9600	1560	1070	877	1320	3960	3490	1670	628	381	292
4	445	5890	1430	1120	856	1280	2710	2750	2390	623	360	284
5	765	3680	1350	1150	877	1240	2410	2470	2310	613	353	287
6	551	2700	1290	1150	861	1180	2270	2210	2020	564	350	1590
7	565	5350	3970	1150	893	1120	2250	2090	7940	531	366	2780
8	539	3000	12800	1180	831	1070	2320	1880	5950	524	436	915
9	723	2350	4110	1130	812	1040	2800	1710	2650	537	405	599
10	1610	2580	2620	1080	823	1030	3280	1830	1960	545	392	496
11	2460	4340	2070	1040	1010	1000	3610	2340	1650	522	364	447
12	2560	3630	1860	1010	1580	986	4370	1970	1620	502	344	410
13	2400	3500	1670	997	1110	962	3370	1810	1500	485	336	390
14	2310	2940	4420	1100	1040	955	3220	2770	1610	468	329	387
15	1520	2200	3790	1570	1970	942	2740	2380	1890	466	325	375
16	1050	1840	2300	1300	1420	965	3120	2650	1420	463	321	372
17	864	1610	1790	1340	1190	1030	2960	3440	1160	460	317	646
18	756	1860	1470	1780	1090	1070	2170	3480	1220	457	312	820
19	696	4110	1350	1860	1120	1240	1940	2970	1270	453	310	528
20	651	3760	1270	2230	1240	1290	1690	2630	1140	452	309	450
21	609	2290	1210	1830	1270	1450	1470	2350	948	452	308	414
22	577	1820	1880	1520	1880	1370	1360	2640	874	448	303	379
23	598	2570	4050	1380	1910	1510	2050	2990	779	446	293	358
24	551	2820	2300	1300	3650	1820	2140	3120	702	441	291	347
25	2300	2210	1680	1230	2730	1520	1950	2690	638	422	291	337
26	1930	1870	1610	1160	1950	1350	1970	2350	640	409	288	329
27	1380	1980	1490	1130	1630	1260	7330	2090	664	395	288	319
28	1690	4150	1310	1080	1600	1180	5720	1980	635	388	284	313
29	1260	3570	1240	1040	---	1120	3240	1780	621	376	281	308
30	1170	2730	1180	984	---	2400	2610	2470	609	378	282	302
31	1010	---	1120	979	---	3940	---	2030	---	387	292	---
TOTAL	34822	97080	74110	38980	38123	41350	87290	76610	52380	14998	10312	16108
MEAN	1123	3236	2391	1257	1362	1334	2910	2471	1746	484	333	537
MAX	2560	9600	12800	2230	3650	3940	7330	3490	7940	628	436	2780
MIN	434	910	1120	979	812	942	1360	1710	609	376	281	284
CFSM	4.29	12.4	9.13	4.80	5.20	5.09	11.1	9.43	6.66	1.85	1.27	2.05
IN.	4.94	13.78	10.52	5.53	5.41	5.87	12.39	10.88	7.44	2.13	1.46	2.29
AC-FT	69070	192600	147000	77320	75620	82020	173100	152000	103900	29750	20450	31950

CAL YR 1984 TOTAL 782930 MEAN 2139 MAX 22900 MIN 414 CFSM 8.16 IN. 111.16 AC-FT 1553000
WTR YR 1985 TOTAL 582163 MEAN 1595 MAX 12800 MIN 281 CFSM 6.09 IN. 82.66 AC-FT 1155000

12168500 PILCHUCK CREEK NEAR BRYANT, WA

LOCATION.--Lat 48°15'58", long 122°09'46", in NE¼NE¼ sec.16, T.32 N., R.5 E., Snohomish County, Hydrologic Unit 17110008, on right bank 500 ft upstream from bridge on State Highway 9, 1.8 mi north of Bryant, and at mile 6.4.

DRAINAGE AREA.--52.0 mi^2.

PERIOD OF RECORD.--March 1929 to September 1931, June 1950 to September 1951, September 1952 to September 1975, June 1980 to current year (seasonal records only).

REVISED RECORDS.--WSP 1316: 1930-31(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 119.8 ft above National Geodetic Vertical Datum of 1929 (stadia traverse). Prior to Oct. 1, 1931, nonrecording gage at site 100 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--26 years (water years 1930, 1931, 1951, 1953-75), 281 ft^3/s, 73.38 in/yr, 203,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft^3/s Jan. 30, 1971, gage height, 8.20 ft, from high-water mark in well, from rating curve extended above 3,900 ft^3/s; minimum observed, 0.5 ft^3/s Aug. 29 to Sept. 1, 1931, gage height, 0.90 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period June to October, 4,260 ft^3/s Oct. 27, gage height, 6.69 ft; minimum, 3.4 ft^3/s on all or part of each day Aug. 26 to Sept. 1, gage height, 1.77 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1985
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	114	14	5.1	3.7	23
2	97	13	6.0	4.1	21
3	88	12	6.0	4.1	38
4	163	11	5.9	3.8	31
5	184	9.7	5.3	7.9	26
6	146	9.6	4.8	629	44
7	1120	9.4	5.2	722	56
8	584	8.8	10	180	37
9	280	7.9	14	80	29
10	181	7.5	11	53	24
11	136	7.2	10	40	48
12	110	7.0	8.2	40	125
13	95	6.7	6.9	39	107
14	114	6.5	6.1	37	1050
15	122	6.2	5.3	41	718
16	86	6.0	4.7	223	604
17	72	6.0	4.5	430	313
18	61	6.0	4.3	175	347
19	55	6.0	3.9	95	245
20	50	5.7	3.7	70	454
21	45	5.2	5.2	58	338
22	41	5.0	4.4	50	434
23	38	4.5	4.1	44	412
24	37	4.1	3.7	41	882
25	36	4.1	3.7	39	1140
26	32	3.9	3.7	35	1110
27	28	3.7	3.4	29	2920
28	25	3.7	3.4	26	1480
29	21	3.7	3.4	25	694
30	15	3.7	3.4	24	522
31	---	3.7	3.4	---	448
TOTAL	4176	211.5	172.7	3248.6	14720
MEAN	139	6.82	5.57	108	475
MAX	1120	14	14	722	2920
MIN	15	3.7	3.4	3.7	21
CFSM	2.67	.13	.11	2.08	9.13
IN.	2.99	.15	.12	2.32	10.53
AC-FT	8280	420	343	6440	29200

12175000 ROSS RESERVOIR NEAR NEWHALEM, WA
(international gaging station)

LOCATION.--Lat 48°43'58", long 121°04'02", in SE¼ sec.35, T.38 N., R.13 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Ross Dam on Skagit River, 1.0 mi downstream from Ruby Creek, 9.1 mi northeast of Newhalem, and at mile 105.2.

DRAINAGE AREA.--999 mi², of which 400 mi² is in Canada.

PERIOD OF RECORD.--March 1940 to current year (monthend elevations and contents only prior to October 1946). Prior to October 1945, published as "Ruby Reservoir near Newhalem."

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is city of Seattle Ross Dam datum; 1.79 ft above National Geodetic Vertical Datum of 1929; and 0.88 ft Geodetic Survey of Canada 1959 datum (by water level transfer of elevation from the international boundary). Prior to Sept. 24, 1940, nonrecording gage on west shore at site upstream from Ross Dam at same datum. June 29, 1943, to Apr. 29, 1948, nonrecording gage on right bank at site 500 ft upstream from dam at present datum.

REMARKS.--Reservoir is formed by concrete-arch dam completed to elevation 1,615 ft in 1949, storage began Mar. 11, 1940. Starting about July 1, 1967, taintor gates were extended to elevation 1,602.50 ft. Usable storage, 1,052,300 acre-ft between elevations 1,475 ft, lower limit of operation, and 1,602.5 ft, top of taintor gates. Dead storage below elevation 1,250 ft. 1,175 acre-ft. Water used by city of Seattle for power development. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by city of Seattle. This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,443,460 acre-ft July 20, 1981, elevation, 1,603.23 ft; minimum observed since dam was completed in 1949, 51,760 acre-ft Apr. 5, 1952, elevation, 1,348.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,432,013 acre-ft July 5, elevation, 1,602.27 ft; minimum, 461,110 acre-ft Apr. 6, elevation, 1,491.27 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)
(Based on 25-foot contour intervals furnished by city of Seattle in 1943)

1,491	459,690	1,550	888,320
1,500	509,240	1,575	1,130,200
1,540	800,920	1,603	1,440,700

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1598.01	1590.99	1583.57	1569.87	1548.33	1524.43	1492.31	1515.56	1565.11	1601.06	1598.74	1595.01
2	1597.81	1591.08	1583.17	1568.95	1547.91	1523.39	1492.30	1516.06	1567.25	1601.21	1598.84	1594.97
3	1597.59	1591.26	1583.32	1568.01	1547.42	1522.72	1492.21	1517.16	1569.44	1601.50	1598.81	1594.80
4	1597.50	1591.44	1581.79	1567.27	1546.49	1521.47	1492.08	1518.11	1571.76	1602.00	1598.84	1594.59
5	1597.47	1591.30	1581.35	1567.02	1545.32	1520.22	1491.75	1519.22	1573.80	1602.16	1598.77	1594.70
6	1597.29	1591.08	1580.73	1566.57	1544.43	1518.97	1491.30	1520.20	1575.33	1602.10	1598.63	1594.82
7	1597.30	1590.38	1580.33	1566.02	1543.76	1517.62	1491.63	1520.57	1577.36	1601.86	1598.50	1594.85
8	1597.11	1589.72	1580.21	1565.40	1543.00	1516.29	1491.48	1521.07	1579.22	1601.78	1598.44	1594.84
9	1597.03	1589.59	1579.82	1564.59	1542.25	1515.06	1492.36	1521.62	1580.67	1601.83	1598.25	1594.40
10	1597.09	1589.59	1579.46	1563.70	1541.46	1514.22	1493.35	1522.07	1581.88	1602.09	1597.90	1593.99
11	1597.29	1589.73	1578.63	1562.91	1540.64	1513.06	1495.07	1522.69	1583.19	1602.08	1597.80	1593.53
12	1597.31	1589.60	1578.20	1562.52	1539.83	1512.24	1496.92	1523.25	1584.65	1601.75	1597.66	1593.21
13	1597.50	1589.24	1577.75	1562.13	1538.93	1511.57	1498.60	1523.25	1586.24	1601.71	1597.47	1592.87
14	1597.61	1588.76	1577.66	1561.64	1538.29	1511.09	1501.03	1523.57	1587.76	1601.73	1597.28	1592.73
15	1597.20	1588.19	1577.56	1561.17	1537.85	1510.07	1503.03	1523.89	1589.43	1601.42	1597.04	1592.82
16	1596.92	1588.10	1577.39	1560.52	1537.48	1509.12	1505.07	1524.43	1590.85	1601.33	1596.84	1592.78
17	1596.45	1588.04	1576.50	1559.90	1536.49	1508.35	1506.88	1526.38	1592.09	1601.22	1596.80	1592.28
18	1596.08	1587.89	1576.04	1559.39	1535.58	1507.70	1508.44	1529.25	1593.49	1600.99	1596.84	1592.21
19	1595.70	1587.72	1575.42	1559.13	1534.68	1507.07	1509.51	1532.37	1595.03	1600.66	1596.70	1591.93
20	1595.40	1587.55	1574.69	1558.75	1534.02	1506.07	1510.42	1535.23	1596.00	1600.71	1596.60	1591.69
21	1595.30	1587.20	1574.05	1558.05	1533.26	1505.07	1511.13	1537.70	1596.57	1601.05	1596.50	1591.67
22	1594.83	1586.89	1574.04	1557.14	1532.34	1503.98	1511.57	1540.77	1597.17	1600.85	1596.37	1591.61
23	1594.27	1586.75	1573.70	1556.00	1531.29	1503.13	1512.08	1544.16	1597.69	1600.64	1596.37	1591.30
24	1593.82	1586.48	1573.50	1554.91	1530.32	1502.14	1512.18	1547.60	1597.75	1600.44	1596.37	1591.08
25	1593.59	1586.26	1573.21	1554.13	1529.13	1500.58	1512.26	1550.82	1597.48	1600.22	1596.40	1590.86
26	1593.41	1585.90	1572.81	1553.38	1528.01	1499.03	1512.11	1553.47	1597.97	1600.06	1596.28	1590.64
27	1593.24	1585.59	1572.27	1552.63	1526.69	1497.33	1512.71	1555.93	1598.84	1599.74	1596.17	1590.42
28	1593.12	1585.14	1571.94	1551.61	1525.64	1496.13	1513.86	1558.23	1599.47	1599.77	1595.92	1590.28
29	1592.51	1584.59	1571.54	1550.73	---	1494.16	1514.50	1560.02	1600.13	1599.43	1595.66	1590.06
30	1591.92	1583.96	1571.08	1549.87	---	1492.86	1515.24	1561.69	1600.80	1599.00	1595.30	1589.74
31	1591.25	---	1570.45	1549.13	---	1492.53	---	1563.16	---	1598.55	1595.08	---
MEAN	1595.77	1588.33	1576.84	1560.10	1537.89	1508.96	1502.78	1533.21	1587.48	1601.00	1597.20	1592.69
MAX	1598.01	1591.44	1583.57	1569.87	1548.33	1524.43	1515.24	1563.16	1600.80	1602.16	1598.84	1595.01
MIN	1591.25	1583.96	1570.45	1549.13	1525.64	1492.53	1491.30	1515.56	1565.11	1598.55	1595.08	1589.74
†	1305600	1225268	1083390	880551	683897	467770	606924	1011052	1414660	1388480	1348712	1288814
‡	-79980	-80332	-141878	-202839	-196654	-216127	+139154	+404128	+403608	-26180	-39768	-59898

CAL YR 1984......................‡ -35586
WTR YR 1985......................‡ -96766

† Contents, in acre-feet, on last day of month.
‡ Change in contents, in acre-feet.

12175500 THUNDER CREEK NEAR NEWHALEM, WA

LOCATION.--Lat 48°40'22", long 121°04'18", in SE¼ sec.23, T.37 N., R.13 E., (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.4 mi upstream from high-water line of Diablo Reservoir, 9.0 mi east of Newhalem, and at mile 3.4.

DRAINAGE AREA.--105 mi^2.

PERIOD OF RECORD.--October 1930 to current year. Published as "above Colonial Creek, near Marblemount" 1930-31.

REVISED RECORDS.--WSP 1012: 1943. WSP 1286: 1931(M), 1932, 1933(M), 1935(M), 1938-39(M), 1941-42(M), 1944-46(M), 1950(M), 1952 (annual runoff in acre-ft). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft, from river-profile map.

REMARKS.--Estimated daily discharges: Aug. 22 to Sept. 30. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Large diurnal fluctuations caused by snowmelt during summer months.

AVERAGE DISCHARGE.--55 years, 614 ft^3/s, 79.41 in/yr, 444,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft^3/s Dec. 26, 1980, gage height, 14.5 ft, from rating curve extended above 3,500 ft^3/s; minimum not determined, probably less than 50 ft^3/s during period of ice effect or no gage-height record in February 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Records for floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 7	1300	*2,840	*7.35	No other peak greater than base discharge.			

Minimum, 85 ft^3/s Mar. 9, gage height, 2.21 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	194	167	128	119	105	156	396	1250	948	1260	500
2	230	222	153	118	117	102	212	515	1350	1190	1090	490
3	323	353	149	117	108	101	314	736	1440	1560	1160	460
4	461	338	148	117	109	99	270	604	1890	1630	1180	490
5	384	291	147	115	112	95	243	506	1470	1630	982	620
6	283	263	145	115	109	93	232	449	1170	1260	928	780
7	544	278	148	114	110	92	237	415	2350	1150	946	530
8	801	256	195	113	108	90	263	396	1680	1420	743	445
9	893	236	178	112	106	89	346	384	1170	1760	685	430
10	1190	226	167	112	106	88	514	385	1040	1900	610	365
11	1070	242	158	112	110	88	662	362	1120	1590	658	360
12	681	249	153	112	111	87	757	335	1520	1460	717	370
13	593	266	146	111	111	87	757	330	1450	1250	659	365
14	444	254	171	109	108	88	827	336	1760	1140	751	350
15	370	233	185	102	108	89	825	352	2010	1220	810	340
16	327	218	168	97	104	92	993	564	1470	1230	774	400
17	288	204	153	103	102	98	824	1080	1350	1430	847	440
18	256	195	139	122	99	105	642	1460	1750	1330	853	350
19	233	195	137	135	97	114	518	1520	2020	1430	810	300
20	217	202	135	152	96	121	439	1360	1780	1460	660	280
21	202	191	135	155	96	123	381	1410	1480	1430	560	280
22	193	182	139	154	96	124	345	1830	1320	1470	495	260
23	188	206	150	150	96	125	331	2050	1080	1510	580	240
24	186	219	139	145	101	127	307	2030	815	1360	680	250
25	609	201	133	141	104	124	287	1690	720	1160	690	260
26	402	190	133	137	114	120	278	1510	881	1040	620	255
27	299	183	134	135	109	119	528	1500	1080	1080	570	230
28	268	186	132	133	106	116	540	1350	1110	1190	530	205
29	241	180	131	129	---	114	443	1150	1130	1360	510	190
30	224	176	131	122	---	118	398	981	1070	1460	580	185
31	204	---	129	121	---	130	---	1020	---	1370	560	---
TOTAL	12809	6829	4628	3838	2972	3263	13869	29006	41726	42418	23498	11020
MEAN	413	228	149	124	106	105	462	936	1391	1368	758	367
MAX	1190	353	195	155	119	130	993	2050	2350	1900	1260	780
MIN	186	176	129	97	96	87	156	330	720	948	495	185
CFSM	3.93	2.17	1.42	1.18	1.01	1.00	4.40	8.91	13.2	13.0	7.22	3.50
IN.	4.54	2.42	1.64	1.36	1.05	1.16	4.91	10.28	14.78	15.03	8.33	3.90
AC-FT	25410	13550	9180	7610	5890	6470	27510	57530	82760	84140	46610	21860

CAL YR 1984	TOTAL	216627	MEAN	592	MAX	6960	MIN	112	CFSM	5.64	IN.	76.75	AC-FT	429700
WTR YR 1985	TOTAL	195876	MEAN	537	MAX	2330	MIN	87	CFSM	5.11	IN.	69.40	AC-FT	388500

12178000 SKAGIT RIVER AT NEWHALEM, WA

LOCATION.--Lat 48°40'19", long 121°14'48", in SW¼SE¼ sec.21, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.4 mi upstream from Newhalem Creek, 0.5 mi downstream from city of Seattle powerplant at Newhalem, 10.8 mi upstream from Bacon Creek, and at mile 93.7.

DRAINAGE AREA.--1,175 mi², of which 400 mi² is in Canada.

PERIOD OF RECORD.--October 1908 to May 1914, October 1920 to current year. June 1914 to September 1920 (monthly discharge only), in State Water-Supply Bulletin 6. Published as "near Marblemount" 1908-14, 1920-31.

REVISED RECORDS.--WSP 512: 1909-14. WSP 1012: 1929. WSP 1316: 1914(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 401.5 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to May 24, 1914, nonrecording gages at site 0.5 mi upstream at datum 91 ft higher. Nov. 15, 1920, to June 4, 1923, nonrecording gage at site about 500 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Water is diverted 2.9 mi upstream from station and is returned to river at city of Seattle powerplant 0.5 mi upstream from station. Flow regulated by Gorge powerplant since August 1924 and by Ross Reservoir (see sta 12175000) since March 1940, Diablo Reservoir (see sta 12176500) since October 1929, and Gorge Reservoir (see sta 12177700) since June 1960, having a combined total capacity of 1,533,000 acre-ft. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--77 years (water years 1909-85), 4,449 ft³/s, 3,223,000 acre-ft/yr, adjusted for storage in Diablo Reservoir since October 1929, Ross Reservoir since March 1940, and Gorge Reservoir since June 1960.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,500 ft³/s Nov. 29, 1909, gage height, 22.0 ft from floodmark, site and datum then in use; minimum, 54 ft³/s Nov. 1, 1943, gage height, 78.15 ft; minimum daily, 136 ft³/s Aug. 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1815 reached a stage of approximately 20.5 ft, discharge about 115,000 ft³/s. Records for other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,420 ft³/s Nov. 7, gage height, 85.16 ft; minimum, 732 ft³/s Apr. 23, gage height, 80.35 ft; minimum daily, 1,310 ft³/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2900	4150	3890	3280	4770	5290	2660	2320	2770	3870	4250	1760
2	2760	2540	4250	5570	3010	5280	2400	2280	2200	5080	3090	1890
3	2600	2740	4690	4430	2750	3350	4000	3130	2470	5590	2990	2550
4	1970	2450	4550	4920	5140	5400	3930	3290	3270	4360	2890	2340
5	1590	3210	3450	2920	5200	5470	3390	1920	2880	5910	3190	3020
6	2150	3060	4260	2510	5460	5470	3460	2480	2480	6860	3830	4090
7	1310	7040	3630	3660	4360	6100	2960	1880	2840	6420	3750	3920
8	2860	6500	3000	4060	4030	6060	2810	2580	4800	6890	3380	2690
9	3200	2600	3840	4110	3770	5080	2360	2510	3070	6370	3410	3690
10	3660	1820	3610	4900	4780	3310	2380	2690	2220	5340	4160	4080
11	3860	1850	4580	5210	4740	4550	2690	2760	2240	6190	2620	4110
12	3520	1940	4630	2670	5040	3750	3470	1880	2040	6930	3510	3030
13	3110	3950	3520	2850	4410	3210	3210	2190	2720	6370	3390	3090
14	2230	6290	3580	3370	3760	2480	2350	2760	2570	4390	3320	2260
15	3450	5760	2520	3290	2600	3770	2350	3130	2880	6190	3300	1620
16	3830	2970	2580	3330	2300	4280	2190	2810	3140	5240	3160	2710
17	3570	2330	4380	3900	3920	2980	2200	4050	2960	5730	2980	3480
18	3730	2360	4700	3640	4750	3120	2810	2950	3590	5970	2470	2690
19	3930	2780	4270	3020	4820	3470	2480	3340	3400	6600	2930	2690
20	3240	2650	4500	3100	3400	4310	2120	3170	4680	4910	2510	2850
21	2350	3030	4150	4990	4540	4740	2040	2710	4490	3010	2390	2010
22	3470	2930	2730	5050	5150	5070	2670	3390	5360	3650	2640	1750
23	3670	3530	2980	6710	3990	5040	2260	3760	5770	5030	2290	2610
24	4220	3410	2710	6630	5340	5060	2730	4290	5030	5140	1760	2290
25	3840	3070	2480	4740	5930	5350	2910	4310	5460	6100	1870	1960
26	4000	3600	2860	4540	5320	5380	3350	3440	3850	5530	2480	2800
27	3410	4010	4190	4960	5890	5390	4100	2690	3620	4530	2690	1950
28	2600	4210	3030	5700	5370	5440	3080	3300	2620	3790	3210	1980
29	4260	4390	2650	5670	---	6180	2150	2810	1990	5320	3220	2120
30	5170	4450	3760	4910	---	5310	2010	3370	2390	5740	3830	2660
31	5280	---	3940	3900	---	2980	---	3040	---	5840	3070	---
TOTAL	101740	105620	114010	132540	124540	142670	83520	91230	99800	170890	94580	80690
MEAN	3282	3521	3678	4275	4448	4602	2784	2943	3327	5513	3051	2690
MAX	5280	7040	4700	6710	5930	6180	4100	4310	5770	6930	4250	4110
MIN	1310	1820	2480	2510	2300	2480	2010	1880	1990	3010	1760	1620
AC-FT	201800	209500	226100	262900	247000	283000	165700	181000	198000	339000	187600	160000
†	-80462	-79607	-144866	-201606	-196107	-216506	+140357	+405495	+403035	-22742	-42263	-62622
MEAN‡	1973	2184	1321	997	917	1081	5145	9536	10103	5139	2363	1637
AC-FT‡	121338	129893	81234	61294	50893	66494	306057	586475	601035	316058	145337	97378

CAL YR 1984 TOTAL 1478320 MEAN 4039 MAX 10800 MIN 1310 AC-FT 2932000 MEAN‡ 3988 AC-FT‡ 2896041
WTR YR 1985 TOTAL 1341830 MEAN 3676 MAX 7040 MIN 1310 AC-FT 2662000 MEAN‡ 3541 AC-FT‡ 2563906

† Change in contents, in acre-feet, for Ross, Diablo, and Gorge Reservoirs.
‡ Adjusted for change in contents of Ross, Diablo, and Gorge Reservoirs.

12178100 NEWHALEN CREEK NEAR NEWHALEN, WA

LOCATION.--Lat 48°39'22", long 121°14'14", in SE¼SE¼ sec.28, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, North Cascades National Park, on left bank 1.2 mi south of Newhalem, 1.5 mi downstream from East Fork, and at mile 1.5.

DRAINAGE AREA.--27.9 mi².

PERIOD OF RECORD.--January 1961 to current year.

REVISED RECORDS.--WDR WA-84-1: 1983.

GAGE.--Water-stage recorder. Elevation of gage is 1,080 ft, by barometer. Prior to October 1981, at datum 0.96 ft lower.

REMARKS.--Estimated daily discharges: Feb. 4-11. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--24 years, 175 ft³/s, 85.18 in/yr, 126,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,430 ft³/s Dec. 26, 1980, gage height, 9.14 ft present datum, from floodmarks, from rating curve extended above 5,570 ft³/s on basis of slope-area measurement of peak flow; minimum, 20 ft³/s Feb. 1, 1963, gage height, 1.07 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1400	*1,320	*4.60	Sept. 6	0145	1,110	4.28

Minimum discharge, 36 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	80	75	50	59	54	112	185	407	257	100	47
2	51	121	70	49	56	52	168	256	380	357	92	45
3	51	338	66	52	54	49	253	324	411	396	87	43
4	70	283	65	56	49	49	167	236	510	398	89	44
5	77	210	63	60	47	48	131	190	408	325	81	198
6	64	180	61	60	44	46	118	167	326	261	76	438
7	70	217	75	59	42	45	126	153	923	260	85	129
8	87	163	152	61	41	44	151	141	609	324	85	98
9	119	134	116	59	40	43	214	133	409	359	82	78
10	230	125	93	56	42	43	299	137	380	317	76	70
11	282	169	82	55	47	43	373	128	416	278	69	67
12	274	173	76	54	52	43	453	114	513	240	68	68
13	306	183	72	53	49	43	376	117	459	201	65	63
14	201	156	90	63	49	44	360	133	533	201	62	62
15	152	126	90	69	56	45	324	137	602	208	63	64
16	124	108	77	67	50	48	405	256	440	217	62	109
17	105	97	70	87	49	54	297	467	441	211	60	139
18	92	94	65	128	47	58	227	540	580	195	59	85
19	84	107	64	141	46	62	181	508	612	195	58	71
20	78	117	63	151	45	64	151	431	510	186	56	64
21	73	101	61	127	45	64	129	432	435	179	52	60
22	69	91	64	108	48	61	114	571	391	171	50	55
23	68	126	73	97	50	60	115	659	306	161	50	51
24	67	132	65	93	69	58	107	665	202	136	52	49
25	322	109	62	87	65	56	99	500	189	124	53	46
26	173	96	60	81	58	53	103	443	267	113	51	44
27	128	90	58	76	55	51	372	447	303	108	49	42
28	116	87	56	72	54	50	300	383	299	110	48	40
29	100	85	55	67	---	49	209	315	306	114	47	39
30	92	80	53	64	---	55	175	287	252	117	53	37
31	81	---	50	61	---	76	---	322	---	110	52	---
TOTAL	3858	4178	2242	2363	1408	1610	6609	9777	12819	6829	2032	2445
MEAN	124	139	72.3	76.2	50.3	51.9	220	315	427	220	65.5	81.5
MAX	322	338	152	151	69	76	453	665	923	398	100	438
MIN	51	80	50	49	40	43	99	114	189	108	47	37
CFSM	4.44	4.98	2.59	2.73	1.80	1.86	7.89	11.3	15.3	7.89	2.35	2.92
IN.	5.14	5.57	2.99	3.15	1.88	2.15	8.81	13.04	17.09	9.11	2.71	3.26
AC-FT	7650	8290	4450	4690	2790	3190	13110	19390	25430	13550	4030	4850

CAL YR 1984	TOTAL	65930	MEAN	180	MAX	2920	MIN	38	CFSM	6.45	IN.	87.91	AC-FT 130800
WTR YR 1985	TOTAL	56170	MEAN	154	MAX	923	MIN	37	CFSM	5.52	IN.	74.89	AC-FT 111400

12179000 SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WA

LOCATION.--Lat 48°36'27", long 121°21'37", in SW¼NE¼ sec.15, T.26 N., R.11 E., Skagit County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, on right bank 0.6 mi upstream from Alma Creek, 6.8 mi northeast of Marblemount, and at mile 85.8.

DRAINAGE AREA.--1,274 mi^2, of which 400 mi^2 is in Canada.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 358.8 ft above National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--No estimated daily discharges. Water-discharge records excellent. All diversions returned to river upstream from gage. Flow regulated by Ross Reservoir (see sta 12175000), Diablo Reservoir (see sta 12176500), and Gorge Reservoir (see sta 12177700) since 1960.

AVERAGE DISCHARGE.--35 years, 5,450 ft^3/s, 3,949,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft^3/s June 21, 1967, gage height, 17.26 ft; minimum, 990 ft^3/s Dec. 29, 1957, gage height, 4.55 ft; minimum daily, 1,110 ft^3/s Oct. 7, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,200 ft^3/s June 7, gage height, 9.83 ft; minimum, 1,540 ft^3/s Oct. 3, gage height, 5.35 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3200	4920	4560	3720	5310	5900	3300	3290	4080	4890	5050	2150
2	3180	3290	4800	6060	3450	5930	3210	3480	3780	6460	3710	2210
3	2960	4460	5250	4950	3180	3920	5220	4680	4470	7140	3540	2870
4	2450	3940	5330	5520	5690	5980	4870	4480	5270	6020	3480	2650
5	2050	4500	4120	3430	5730	6020	4180	2670	4610	7100	3810	3630
6	2540	4140	4770	2930	6090	6080	4220	3360	3940	8060	4170	5660
7	1750	8230	4320	4130	4900	6650	3750	2670	7070	7570	4470	4840
8	3360	7840	4000	4520	4580	6780	3630	3480	6270	8220	4000	3270
9	3980	3670	4430	4620	4210	5680	3400	3220	4340	7860	3860	4150
10	4930	2640	4520	5370	5310	3790	3740	3720	3630	6830	4740	4600
11	5350	2810	5180	5780	5260	5030	4380	3110	3620	7250	3050	4620
12	4930	2940	5350	3140	5650	4270	5520	2550	4440	8050	4080	3590
13	4560	4690	4300	3270	4850	3710	4950	2940	4300	7440	3880	3550
14	3290	7340	4300	3830	4290	2890	3980	3780	4670	5400	3750	2690
15	4220	6880	3440	3810	3100	4230	3810	3970	5230	7170	3730	1960
16	4630	3860	3180	3840	2710	4700	3980	4140	4880	6300	3560	3240
17	4270	3080	4680	4490	4290	3440	3610	5980	5030	6800	3450	4160
18	4380	2950	5460	4360	5280	3520	3950	5230	5760	6950	3030	3300
19	4550	3500	4850	3800	5370	3850	3430	5530	5750	7630	3240	3140
20	3850	3430	5020	3880	3890	4810	2920	4920	6680	6010	3080	3280
21	2840	3670	4840	5820	5000	5270	2740	4480	6810	3970	2690	2440
22	3860	3630	3400	5830	5710	5590	3310	5760	6160	6490	2980	2090
23	4050	4240	3510	7510	4530	5460	2940	6550	6570	5870	2700	2940
24	4840	4190	3360	7410	6070	5600	3420	7250	6120	5870	2100	2600
25	5000	3740	2930	5450	6660	5840	3500	6140	6250	6960	2220	2300
26	4950	4330	3330	5200	6030	5820	4040	5020	5090	6220	2790	3000
27	4160	4600	4770	5610	6560	5860	5910	4710	4830	5330	2980	2370
28	3260	4980	3620	6350	6000	5780	4510	4980	3890	4520	3600	2220
29	4770	5010	3070	6280	---	6750	3250	4580	3170	5960	3590	2370
30	5820	5250	4180	5490	---	5900	2950	4590	3390	6500	4260	2950
31	5890	---	4490	4470	---	3500	---	4420	---	6520	3570	---
TOTAL	123870	132750	133360	150870	139700	158550	116620	135680	150100	203360	109160	94840
MEAN	3996	4425	4302	4867	4989	5115	3887	4377	5003	6560	3521	3161
MAX	5890	8230	5460	7510	6660	6780	5910	7250	7070	8220	5050	5660
MIN	1750	2640	2930	2930	2710	2890	2740	2550	3170	3970	2100	1960
AC-FT	245700	263300	264500	299300	277100	314500	231300	269100	297700	403400	216500	188100

CAL YR 1984 TOTAL 1834840 MEAN 5013 MAX 23200 MIN 1750 AC-FT 3639000
WTR YR 1985 TOTAL 1648860 MEAN 4517 MAX 8230 MIN 1750 AC-FT 3271000

12179000 SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.—
WATER TEMPERATURES: January 1953 to September 1973, September 1974 to September 1985 (discontinued).

INSTRUMENTATION.—Temperature recorder for period of daily record.

REMARKS.—Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.—
WATER TEMPERATURES: Maximum, 15.0°C Aug. 3-5, 9, 12, 13, 20, 1977; minimum, 1.0°C Jan. 26, 27, 29-31, Feb. 1-3, 1972, Feb. 11, 1981, Feb. 7, 8, 20, 22-24, 1982.

EXTREMES FOR CURRENT YEAR.—
WATER TEMPERATURES: Maximum recorded, 10.5°C Oct. 2-5; minimum recorded, 2.0°C Feb. 3-5, 7-11.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.0	9.0	9.5	8.0	7.5	8.0	8.0	7.0	7.5	4.5	3.5	4.0
2	10.5	9.0	9.5	8.0	7.0	7.5	7.0	6.5	7.0	5.0	4.0	4.5
3	10.5	9.0	10.0	7.0	6.5	7.0	6.5	6.0	6.5	5.0	4.5	4.5
4	10.5	9.5	10.0	7.0	7.0	7.0	6.0	6.0	6.0	5.0	4.5	4.5
5	10.5	9.5	9.5	7.5	6.5	7.0	6.0	5.5	5.5	5.0	4.5	4.5
6	10.0	9.5	9.5	8.0	7.5	7.5	6.0	5.5	6.0	4.5	4.5	4.5
7	10.0	9.5	9.5	8.0	7.5	8.0	6.5	6.0	6.0	4.5	4.0	4.0
8	10.0	9.5	10.0	8.5	8.0	8.0	6.5	6.0	6.0	4.0	4.0	4.0
9	10.0	9.5	10.0	8.5	7.5	8.0	6.5	6.0	6.0	4.0	4.0	4.0
10	9.5	9.5	9.5	8.0	7.5	7.5	6.5	6.0	6.0	4.0	4.0	4.0
11	10.0	9.0	9.5	8.0	7.5	7.5	6.5	6.5	6.5	4.0	3.5	4.0
12	9.0	9.0	9.0	8.0	7.5	7.5	6.5	6.5	6.5	4.0	4.0	4.0
13	9.0	8.5	8.5	8.0	7.5	7.5	6.5	6.5	6.5	4.0	3.5	4.0
14	9.0	8.0	8.5	8.5	7.5	8.0	6.5	6.0	6.5	4.0	3.5	4.0
15	9.0	8.5	8.5	8.0	8.0	8.0	6.5	6.0	6.0	4.5	4.0	4.0
16	9.5	8.5	9.0	8.0	7.5	7.5	6.0	5.5	5.5	4.5	4.0	4.0
17	9.0	8.5	9.0	7.5	7.0	7.5	5.0	4.5	5.0	4.5	4.0	4.0
18	9.5	8.5	9.0	7.5	7.5	7.5	4.5	4.5	4.5	4.5	4.0	4.5
19	9.5	8.5	9.0	7.5	7.5	7.5	5.0	4.5	4.5	4.5	4.5	4.5
20	9.5	8.5	9.0	8.0	7.5	7.5	5.0	4.5	5.0	4.5	4.5	4.5
21	9.5	8.0	8.5	8.0	7.5	7.5	5.5	5.0	5.0	4.5	4.0	4.5
22	9.0	8.0	8.5	7.5	7.0	7.5	5.5	5.5	5.5	4.0	4.0	4.0
23	9.0	8.5	8.5	7.5	7.5	7.5	5.5	5.5	5.5	4.0	4.0	4.0
24	9.5	9.0	9.0	7.5	7.0	7.5	5.5	5.5	5.5	4.0	4.0	4.0
25	9.0	8.5	9.0	7.5	7.0	7.5	6.0	5.5	5.5	4.0	3.5	4.0
26	8.5	8.5	8.5	7.5	7.5	7.5	5.5	5.5	5.5	4.0	3.5	3.5
27	9.0	8.0	8.5	7.5	7.0	7.5	5.5	5.5	5.5	4.0	3.5	3.5
28	9.0	8.0	8.5	7.5	7.0	7.5	5.5	5.0	5.5	4.0	3.5	4.0
29	8.5	8.0	8.5	7.5	7.0	7.5	4.5	4.0	4.5	4.0	3.5	3.5
30	8.5	8.0	8.5	8.0	7.0	7.5	4.0	3.5	4.0	3.5	3.0	3.5
31	8.0	7.5	8.0	---	---	---	4.0	4.0	4.0	3.5	3.0	3.5
MONTH	10.5	7.5	9.0	8.5	6.5	7.5	8.0	3.5	5.5	5.0	3.0	4.0

12179000 SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.5	3.0	3.0	4.0	3.5	3.5	5.5	4.0	4.5	7.0	5.0	6.0
2	3.0	2.5	2.5	4.0	3.5	3.5	4.5	4.0	4.5	6.5	5.5	6.0
3	2.5	2.0	2.0	4.0	3.0	3.5	4.5	4.0	4.0	6.5	5.5	5.5
4	2.0	2.0	2.0	4.0	3.5	3.5	4.0	4.0	4.0	6.0	5.0	5.5
5	2.5	2.0	2.5	4.0	3.5	3.5	5.5	4.0	4.5	7.0	5.0	6.0
6	2.5	2.5	2.5	4.0	3.0	3.5	5.5	4.0	4.5	6.5	5.5	6.0
7	3.0	2.0	2.5	3.5	3.0	3.5	5.0	4.0	4.5	6.5	5.5	6.0
8	3.0	2.0	2.5	3.5	3.0	3.0	6.0	4.0	5.0	7.0	5.5	6.0
9	2.5	2.0	2.5	3.5	3.0	3.0	6.5	4.5	5.0	7.5	5.5	6.0
10	2.5	2.0	2.0	4.0	3.0	3.0	5.5	4.5	5.0	6.5	5.5	6.0
11	2.5	2.0	2.5	3.5	3.0	3.0	5.0	4.5	5.0	7.0	5.5	6.0
12	3.0	2.5	3.0	4.0	3.0	3.5	5.5	4.5	5.0	8.0	5.5	6.5
13	3.5	2.5	3.0	4.0	3.0	3.5	5.5	4.5	5.0	6.5	5.5	6.0
14	3.0	2.5	2.5	4.5	3.0	3.5	5.5	5.0	5.0	7.5	6.0	6.5
15	3.0	2.5	3.0	4.0	3.0	3.5	6.5	5.0	5.5	7.5	5.5	6.5
16	3.5	3.0	3.0	4.0	3.0	3.5	5.5	5.0	5.0	8.5	6.0	7.0
17	3.5	3.0	3.0	4.0	3.0	3.5	6.0	5.0	5.5	8.0	6.0	7.0
18	3.5	3.0	3.0	4.5	3.5	3.5	5.5	4.5	5.0	8.5	5.5	7.0
19	3.0	3.0	3.0	4.0	3.5	3.5	5.5	4.5	4.5	7.5	6.0	6.5
20	3.5	3.0	3.5	4.0	3.5	3.5	5.5	4.5	5.0	7.0	6.5	6.5
21	3.5	3.5	3.5	4.0	3.5	3.5	6.0	4.5	5.0	8.5	6.5	7.0
22	3.5	3.5	3.5	3.5	3.5	3.5	5.5	4.5	5.0	8.5	6.5	7.0
23	3.5	3.5	3.5	3.5	3.0	3.5	5.0	5.0	5.0	8.0	6.5	7.0
24	4.0	3.5	3.5	4.0	3.5	3.5	5.5	4.5	5.0	7.0	6.5	7.0
25	4.0	3.5	3.5	4.0	3.5	3.5	6.0	5.0	5.5	8.0	6.5	7.0
26	4.0	3.5	3.5	4.0	3.5	3.5	5.0	5.0	5.0	9.0	6.5	7.5
27	4.0	3.5	3.5	4.0	3.5	3.5	5.0	4.5	4.5	8.5	7.0	7.5
28	4.0	3.5	3.5	4.0	3.5	3.5	6.0	4.5	5.0	7.5	7.0	7.0
29	---	---	---	4.0	3.5	3.5	6.5	4.5	5.5	7.5	7.0	7.0
30	---	---	---	3.5	3.0	3.5	7.0	4.5	5.5	8.0	6.5	7.5
31	---	---	---	4.5	3.5	4.0	---	---	---	9.0	6.5	8.0
MONTH	4.0	2.0	3.0	4.5	3.0	3.5	7.0	4.0	5.0	9.0	5.0	6.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.0	7.5	10.0	8.0	9.0						
2	8.5	7.0	7.5	10.0	9.0	9.5						
3	9.0	6.5	7.5	9.5	9.5	9.5						
4	8.0	7.0	7.5	---	---	---						
5	8.0	7.0	7.5	---	---	---						
6	8.0	7.0	7.5	---	---	---						
7	7.0	6.5	7.0	---	---	---						
8	8.0	6.5	7.0	---	---	---						
9	9.0	6.5	7.5	---	---	---						
10	9.5	6.5	8.0	---	---	---						
11	9.0	7.0	8.0	---	---	---						
12	9.0	7.5	8.0	---	---	---						
13	8.0	7.0	7.5	---	---	---						
14	8.0	7.5	7.5	---	---	---						
15	9.0	7.0	8.0	---	---	---						
16	9.5	7.0	8.0	---	---	---						
17	9.5	7.5	8.5	---	---	---						
18	10.0	7.5	8.5	---	---	---						
19	10.0	8.0	9.0	---	---	---						
20	9.5	8.5	9.0	---	---	---						
21	10.0	8.0	9.0	---	---	---						
22	9.5	8.0	8.5	---	---	---						
23	8.5	8.0	8.0	---	---	---						
24	8.5	8.0	8.0	---	---	---						
25	9.0	8.0	8.5	---	---	---						
26	10.0	8.5	9.0	---	---	---						
27	9.5	8.0	8.5	---	---	---						
28	10.0	8.0	9.0	---	---	---						
29	10.0	8.0	8.5	---	---	---						
30	10.0	8.0	9.0	---	---	---						
31	---	---	---	---	---	---						
MONTH	10.0	6.5	8.0	---	---	---						

0203

12181000 SKAGIT RIVER AT MARBLEMOUNT, WA

LOCATION.--Lat 48°32'02", long 121°25'43", in NE¼SW¼ sec.7, T.35 N., R.11 E., Skagit County, Hydrologic Unit 17110005, on right bank 0.5 mi north of Marblemount, 0.6 mi upstream from Cascade River, and at mile 78.7.

DRAINAGE AREA.--1,381 mi², which 400 mi² is in Canada.

PERIOD OF RECORD.--September 1943 to July 1944, October 1946 to September 1951, May 1976 to current year.

REVISED RECORDS.--WDR WA-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 305.1 ft above National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--No estimated daily discharges. Records good. All diversions returned to river upstream from gage. Flow regulated by Ross Reservoir (see sta 12175000), Diablo Reservoir (see sta 12176500), and Gorge Reservoir (see sta 12177700) since 1960.

AVERAGE DISCHARGE.--14 years (water years 1947-51, 1977-85), 6,067 ft³/s, 4,396,000 acre-ft/yr, unadjusted for regulation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,300 ft³/s Nov. 27, 1949, gage height, 11.37 ft, from rating curve extended above 20,000 ft³/s; minimum, 620 ft³/s Mar. 6, 1944, gage height, 0.55 ft; minimum daily, 1,190 ft³/s Feb. 25, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,500 ft³/s June 7, gage height, 5.70 ft; minimum, 1,860 ft³/s Oct. 3, gage height, 2.10 ft; minimum daily, 2,180 ft³/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3200	5300	5340	4280	5880	6560	4200	4420	5870	6060	5900	2760
2	3330	4210	5500	6550	4130	6570	4230	4870	5280	8100	4390	2700
3	3180	6460	5890	5480	3700	4720	6610	6180	6060	9090	4180	3250
4	2770	5390	5920	6140	6050	6430	5930	5730	7830	7820	4200	3100
5	2470	5480	4810	4090	6240	6670	5040	3830	6570	8770	4460	4420
6	2730	5100	5260	3520	6600	6730	5020	4320	5410	9740	4670	7590
7	2180	10100	5110	4570	5410	7110	4660	3630	10800	9130	5070	5730
8	3410	9630	5320	4970	5090	7760	4650	4310	9110	10100	4630	3950
9	4390	4930	5360	5160	4590	6280	4710	4080	6010	9770	4420	4580
10	5950	3710	5390	5900	5740	4330	5270	4530	5160	8500	5360	5000
11	6600	4070	5880	6450	5680	5440	6190	4070	5230	8720	3650	4990
12	6160	4260	6010	3830	6350	4840	7780	3370	6340	9630	4660	4130
13	5740	5840	5000	3730	5230	4280	6910	3710	6040	8800	4390	3930
14	4240	8720	5150	4340	4980	3420	5670	4620	6880	6450	4230	3210
15	4680	8110	4390	4450	3760	4500	5350	4820	7580	8400	4240	2460
16	5020	4810	3980	4410	3270	5050	5800	5480	6610	7440	4060	3720
17	4610	3990	5350	5050	4580	4220	5020	8460	6810	8070	3980	4880
18	4630	3700	6130	5130	5690	3980	5120	7690	8100	8190	3640	3970
19	4750	4410	5590	4720	5900	4310	4430	7860	8290	9030	3690	3570
20	4160	4360	5630	4630	4430	5190	3830	6860	8950	7080	3780	3710
21	3240	4430	5510	6600	5340	5770	3560	6120	8700	4950	3120	2990
22	3910	4360	4190	6610	6270	6200	3980	8050	7980	7460	3460	2560
23	4230	5100	4110	8450	5070	6050	3820	9500	7900	6910	3210	3260
24	5000	5130	4170	8510	6760	6240	4080	10400	7370	6800	2630	3040
25	6370	4510	3490	6200	7550	6450	4320	8670	7400	7960	2710	2730
26	5560	5030	3940	5850	6890	6370	4740	6980	6370	7090	3190	3310
27	4650	5300	5300	6200	7240	6430	7980	6550	6080	6130	3420	2890
28	3930	5690	4330	7020	6720	6300	6350	6700	5180	5270	4010	2580
29	4930	5750	3590	6990	---	7410	4520	5980	4470	6720	4010	2740
30	6160	6010	4640	6140	---	6670	4070	6050	4540	7390	4640	3300
31	6200	---	5000	5070	---	4290	---	5940	---	7450	4110	---
TOTAL	138380	163890	155280	171040	155140	176570	153840	183780	204920	243020	126110	111050
MEAN	4464	5463	5009	5517	5541	5696	5128	5928	6831	7839	4068	3702
MAX	6600	10100	6130	8510	7550	7760	7980	10400	10800	10100	5900	7590
MIN	2180	3700	3490	3520	3270	3420	3560	3370	4470	4950	2630	2460
AC-FT	274500	325100	308000	339300	307700	350200	305100	364500	406500	482000	250100	220300

CAL YR 1984 TOTAL 2200770 MEAN 6013 MAX 39100 MIN 2050 AC-FT 4365000
WTR YR 1985 TOTAL 1983020 MEAN 5433 MAX 10800 MIN 2180 AC-FT 3933000

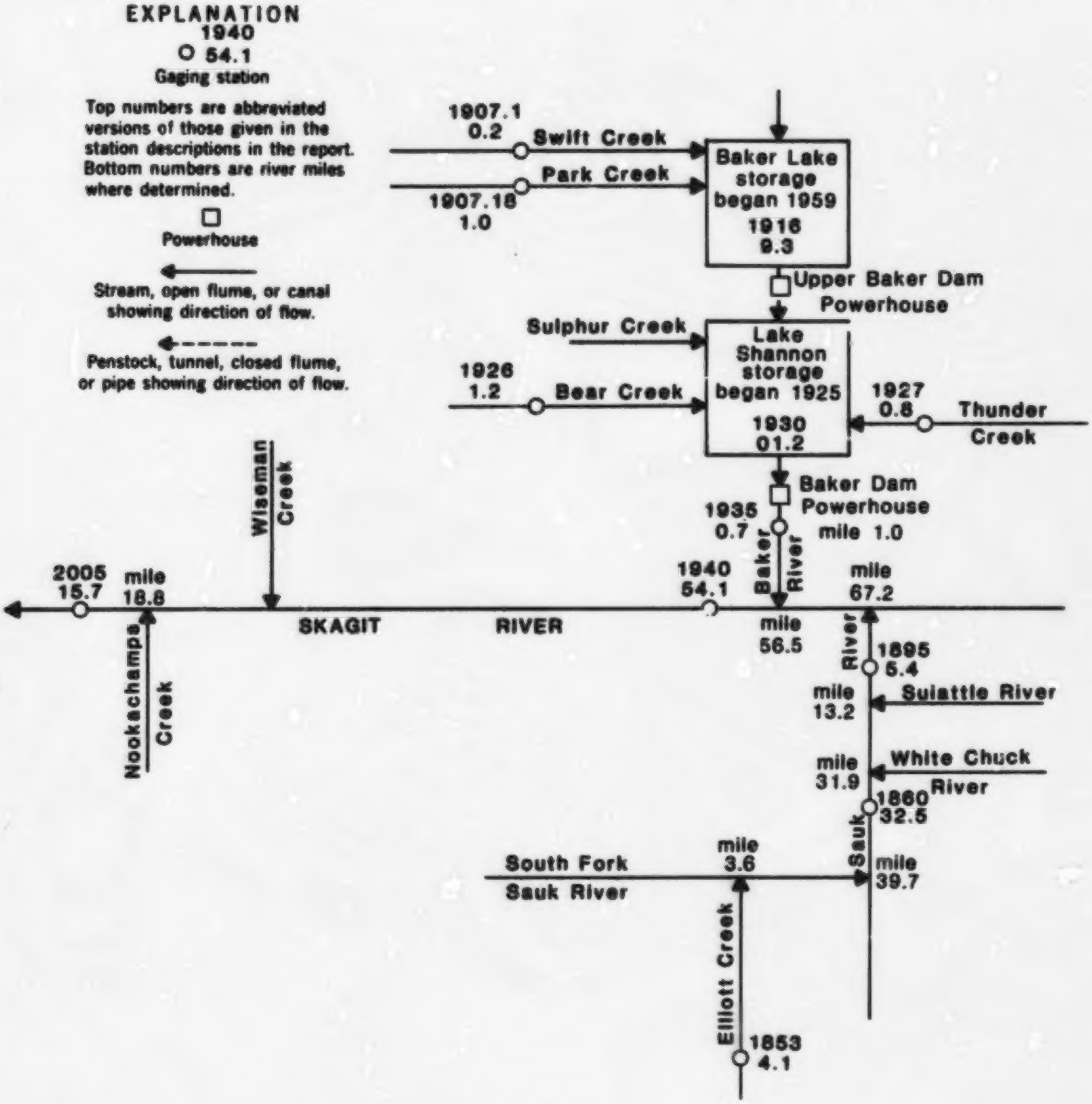
EXPLANATION
1940
54.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
1907.1
0.2
Swift Creek
Park Creek
1907.18
1.0
Baker Lake storage began 1959
1916
9.3
Upper Baker Dam Powerhouse
Sulphur Creek
1926
1.2
Bear Creek
Lake Shannon storage began 1925
1930
01.2
1927
0.8
Thunder Creek
Baker Dam Powerhouse
mile 1.0
1935
0.7
Baker River
Wiseman Creek
2005
15.7
mile
18.8
1940
54.1
mile
67.2
SKAGIT
RIVER
mile
56.5
Nookachamps Creek
1895
5.4
mile
13.2
Suiattle River
mile
31.9
White Chuck River
1860
32.5
Sauk River
mile
3.6
South Fork Sauk River
mile
39.7
Elliott Creek
1853
4.1

Figure 17.--Gaging stations in Skagit River basin below Cascade River.

12184500 ILLABOT CREEK NEAR ROCKPORT, WA

LOCATION.—Lat 48°28'53", long 121°30'03", in NW¼NW¼ sec.34, T.35 N., R.10 E., Skagit County, Hydrologic Unit 17110005, on right bank at Rockport-Cascade county highway bridge, 4.5 mi east of Rockport, and 0.6 mi upstream from mouth.

DRAINAGE AREA.—42.4 mi².

PERIOD OF RECORD.—August to October 1943, July to November 1944, March 1982 to September 1985 (discontinued).

GAGE.—Water-stage recorder. Elevation of gage is 320 ft, from topographic map. Aug. 23 to Oct. 31, 1943, at different datum, and July 1 to Nov. 3, 1944, at site 0.5 mi upstream at different datum.

REMARKS.—No estimated daily discharges. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 2,920 ft³/s Jan. 4, 1984, gage height, 6.67 ft; maximum gage height, 7.23 ft Dec. 24, 1983 due to ice jam; minimum observed, 58 ft³/s Sept. 8, 1944.

EXTREMES FOR CURRENT YEAR.—Maximum discharge, 1,830 ft³/s June 7, gage height, 6.26 ft; minimum, 66 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	243	204	125	123	123	185	295	477	309	166	84
2	91	841	189	125	118	113	225	352	453	353	151	87
3	89	727	176	134	109	107	308	418	454	416	142	81
4	108	480	168	139	116	106	228	351	632	423	144	78
5	140	366	160	146	110	103	202	306	565	394	136	160
6	110	397	158	143	105	99	190	284	493	325	129	504
7	115	377	323	144	110	95	199	269	1320	300	136	191
8	122	305	413	143	102	93	225	253	1110	330	131	136
9	177	265	281	137	98	91	283	241	687	372	128	116
10	219	316	240	131	98	89	376	241	582	362	122	108
11	272	388	220	127	117	87	491	236	554	319	116	105
12	368	374	201	125	119	86	540	217	596	293	116	109
13	438	363	191	126	103	85	470	218	580	267	113	99
14	325	298	350	153	110	85	454	271	603	246	109	97
15	246	267	261	171	143	85	425	249	728	247	110	99
16	210	245	223	156	120	86	504	331	592	240	109	111
17	182	237	195	186	111	92	435	502	544	233	108	171
18	157	253	182	231	106	95	369	614	636	232	106	131
19	144	279	177	242	105	97	313	612	681	226	103	111
20	132	270	171	258	104	102	273	559	609	221	98	100
21	122	240	163	226	106	102	243	521	521	216	92	93
22	113	226	175	201	119	99	219	621	488	207	91	88
23	108	331	207	186	127	114	238	731	429	203	92	84
24	108	267	179	178	168	111	224	784	349	187	96	81
25	264	243	168	168	151	101	207	693	301	175	95	79
26	280	226	165	158	132	96	212	596	312	165	93	78
27	215	227	158	152	122	94	530	565	354	159	87	76
28	202	238	146	144	123	90	452	517	348	160	86	72
29	173	233	141	137	---	88	338	454	351	165	85	70
30	169	219	133	129	---	112	294	455	329	167	88	68
31	151	---	128	125	---	149	---	440	---	169	89	---
TOTAL	5644	9741	6246	4946	3275	3075	9652	13196	16678	8081	3467	3467
MEAN	182	325	201	160	117	99.2	322	426	556	261	112	116
MAX	438	841	413	258	168	149	540	784	1320	423	166	504
MIN	89	219	128	125	98	85	185	217	301	159	85	68
CFSM	4.29	7.67	4.74	3.77	2.76	2.34	7.59	10.0	13.1	6.16	2.64	2.74
IN.	4.95	8.55	5.48	4.34	2.87	2.70	8.47	11.58	14.63	7.09	3.04	3.04
AC-FT	11190	19320	12390	9810	6500	6100	19140	26170	33080	16030	6880	6880

CAL YR 1984 TOTAL 102460 MEAN 280 MAX 2140 MIN 89 CFSM 6.60 IN. 89.89 AC-FT 203200

WTR YR 1985 TOTAL 87468 MEAN 240 MAX 1320 MIN 68 CFSM 5.66 IN. 76.74 AC-FT 173500

12185295 GOAT LAKE INLET NEAR MONTE CRISTO, WA

LOCATION.--Lat 48°00'52", long 121°20'51", in NE¼ sec.11, T.29 N., R.11 E. (unsurveyed), at Goat Lake Inlet, Snohomish County, Hydrologic Unit 17110006, and 2.5 miles northeast of Monte Cristo.

PERIOD OF RECORD.--January 1983 to current year.

REMARKS.--Quality of water analyses for dissolved aluminum and dissolved iron were determined from water filtered through a 0.10 micrometer filter. Discharge measured intermittingly at same site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	ACIDITY (MG/L AS H)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT										
16...	1105	10	14	6.30	7.40	5.0	7	7	<0.1	1.9
JUN										
20...	0820	66	13	6.30	7.00	3.5	6	6	<0.1	1.8
JUL										
25...	1127	24	12	6.90	7.00	5.5	5	5	<0.1	1.5
AUG										
13...	1150	14	12	6.90	7.50	6.0	6	6	<0.1	1.7
SEP										
17...	0930	30	13	6.80	7.70	5.5	7	7	<0.1	2.0

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)
OCT										
16...	0.5	0.4	11	0.1	0.21	5	1.4	0.30	0.04	0.01
JUN										
20...	0.4	0.4	12	0.1	0.2	3	1.2	0.33	0.02	<0.01
JUL										
25...	0.4	0.3	11	0.1	0.12	3	1.3	0.21	0.04	<0.01
AUG										
13...	0.41	0.4	12	0.1	0.19	4	1.4	0.23	0.02	<0.01
SEP										
17...	0.44	0.4	11	0.1	0.17	4	1.3	0.21	0.02	<0.01

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
OCT										
16...	2.5	10	0.01	0.27	<0.005	<0.002	20	9	6	0.9
JUN										
20...	2.3	9	0.01	1.5	0.030	0.002	<10	21	5	1.1
JUL										
25...	1.9	8	0.01	0.49	0.009	0.001	<10	5	1	2.1
AUG										
13...	2.2	9	0.01	0.34	0.003	0.003	10	8	2	2.2
SEP										
17...	2.0	9	0.01	0.73	0.026	0.001	<10	4	3	0.6

12185300 ELLIOTT CREEK AT GOAT LAKE OUTLET, NEAR MONTE CRISTO, WA

LOCATION.--Lat 48°01'20", long 121°21'19", in SW¼SE¼ sec.2, T.29 N., R.11 E. (unsurveyed), at Goat Lake outlet, Snohomish County, Hydrologic Unit 17110006, on left bank 50 ft upstream from falls, and 3.0 mi northeast of Monte Cristo.

DRAINAGE AREA.--3.03 mi² (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,200 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 15, 16. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 782 ft³/s Jan. 4, 1984, gage height, 2.38 ft; minimum daily, 3.6 ft³/s Dec. 24, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 206 ft³/s June 7, 8, gage height, 1.59 ft; minimum, 4.0 ft³/s Mar. 8-16, gage height, 0.56 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	15	9.9	6.1	6.2	4.6	12	24	49	38	40	18
2	11	17	8.5	5.4	5.9	4.6	16	27	55	39	39	22
3	10	25	7.8	4.9	5.4	4.5	21	41	56	56	35	21
4	11	26	7.6	4.9	5.2	4.3	22	44	99	64	34	19
5	19	26	7.1	4.9	5.0	4.3	22	37	104	66	31	32
6	21	26	6.7	4.9	4.9	4.3	21	30	74	56	28	117
7	21	24	7.6	4.9	4.9	4.3	20	26	148	47	26	77
8	23	21	14	4.9	4.9	4.0	20	24	172	48	29	49
9	37	20	15	4.9	4.9	4.0	24	23	95	60	29	34
10	55	17	15	4.9	5.1	4.0	34	23	63	68	27	29
11	69	16	13	4.9	9.3	4.0	52	21	53	65	25	25
12	69	19	12	4.9	10	4.0	84	19	59	57	23	23
13	67	23	11	4.9	7.2	4.0	75	18	71	49	21	22
14	54	23	12	5.3	5.7	4.0	62	18	76	43	21	21
15	44	19	15	6.5	5.6	4.0	55	16	91	42	21	20
16	30	17	13	6.5	5.5	4.2	64	20	79	42	21	20
17	26	15	12	6.9	5.2	4.8	61	54	61	44	21	37
18	22	15	10	8.4	4.7	5.6	49	104	72	49	21	37
19	20	15	9.3	9.2	4.6	6.7	38	114	95	49	21	30
20	16	15	8.7	9.8	4.6	7.0	31	104	95	49	20	25
21	14	15	8.4	10	4.6	7.0	25	81	74	49	18	21
22	14	13	8.5	10	4.6	7.0	22	83	63	49	16	18
23	13	13	9.1	10	4.4	7.5	20	103	55	50	15	15
24	13	14	8.2	10	4.7	7.8	17	114	42	44	15	14
25	33	14	7.2	9.5	4.9	7.5	15	113	32	39	15	13
26	47	13	7.0	9.2	4.9	6.1	14	94	28	35	15	12
27	36	13	6.5	8.4	4.8	5.6	17	78	30	34	16	12
28	28	13	6.5	7.9	4.6	5.6	25	68	36	33	16	12
29	24	12	7.1	7.6	---	5.1	25	57	39	34	16	12
30	18	11	8.1	7.2	---	6.7	25	49	39	37	16	12
31	18	---	6.4	6.7	---	8.8	---	47	---	40	17	---
TOTAL	895	525	298.2	214.5	152.3	165.9	988	1674	2105	1475	708	819
MEAN	28.9	17.5	9.62	6.92	5.44	5.35	32.9	54.0	70.2	47.6	22.8	27.3
MAX	69	26	15	10	10	8.8	84	114	172	68	40	117
MIN	10	11	6.4	4.9	4.4	4.0	12	16	28	33	15	12
CFSM	9.54	5.78	3.17	2.28	1.80	1.77	10.9	17.8	23.2	15.7	7.52	9.01
IN.	10.99	6.45	3.66	2.63	1.87	2.04	12.13	20.55	25.84	18.11	8.69	10.06
AC-FT	1780	1040	591	425	302	329	1960	3320	4180	2930	1400	1620

CAL YR 1984	TOTAL	12474.9	MEAN	34.1	MAX	492	MIN	6.4	CFSM	11.3	IN.	153.16	AC-FT	24740
WTR YR 1985	TOTAL	10019.9	MEAN	27.5	MAX	172	MIN	4.0	CFSM	9.08	IN.	123.02	AC-FT	19870

12185300 ELLIOTT CREEK AT GOAT LAKE OUTLET, NEAR MONTE CRISTO, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1983 to current year.

REMARKS.--Quality of water analyses for dissolved aluminum and dissolved iron were determined from water filtered through a 0.10 micrometer filter.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	ACIDITY (MG/L AS H)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 16...	1225	28	16	6.20	7.20	6.5	7	7	<0.1	2.0
NOV 14...	1210	24	16	6.10	7.90	2.5	7	7	<0.1	2.1
DEC 31...	0910	e6.4	18	6.10	6.60	0.5	7	7	<C.1	2.1
JAN 30...	0920	7.2	19	6.10	6.50	1.5	9	9	<0.1	2.3
FEB 21...	0840	4.6	19	6.10	6.40	0.0	8	8	<0.1	2.5
MAR 19...	0835	6.8	20	6.10	6.40	1.0	8	8	<0.1	2.5
APR 25...	0935	15	18	6.00	7.00	2.5	8	8	<0.1	2.3
MAY 21...	1030	78	18	6.10	6.80	4.0	8	8	<0.1	2.2
JUN 20...	0955	98	12	6.10	7.20	8.0	6	6	<0.1	1.7
JUL 25...	1235	39	11	6.90	7.10	12.5	6	6	<0.1	1.6
AUG 13...	1252	22	12	6.90	7.70	13.0	6	6	<0.1	1.7
SEP 17...	1050	37	14	6.90	7.80	9.5	7	7	<0.1	2.0

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)
OCT 16...	0.40	0.4	11	0.1	0.31	6	1.5	0.30	0.04	<0.01
NOV 14...	0.51	0.5	12	0.1	0.28	5	1.6	0.48	0.02	<0.01
DEC 31...	0.50	0.5	12	0.1	0.29	6	1.5	0.45	0.02	<0.01
JAN 30...	0.80	0.6	12	0.1	0.33	5	1.6	0.47	0.01	<0.01
FEB 21...	0.50	0.6	13	0.1	0.36	6	1.6	0.46	0.03	0.02
MAR 19...	0.50	0.7	15	0.1	0.52	6	1.6	0.59	0.03	<0.01
APR 25...	0.50	0.5	12	0.1	0.27	5	1.4	0.50	0.01	<0.01
MAY 21...	0.50	0.5	12	0.1	0.3	5	1.5	0.44	0.02	<0.01
JUN 20...	0.40	0.3	10	0.1	0.18	3	1.2	0.32	0.02	<0.01
JUL 25...	0.38	0.4	13	0.1	0.2	3	1.2	0.26	0.03	0.01
AUG 13...	0.48	0.4	12	0.1	0.21	5	1.3	0.28	0.01	<0.01
SEP 17...	0.43	0.4	11	0.1	0.22	5	1.3	0.28	0.02	<0.01

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
OCT 16...	2.2	11	0.02	0.82	0.008	0.002	20	14	14	0.7
NOV 14...	2.7	11	0.02	0.73	0.018	<0.002	30	18	11	1.3
DEC 31...	3.4	12	0.02	0.21	0.039	<0.002	<10	13	5	0.5
JAN 30...	0.5	10	0.01	0.19	0.018	0.002	<10	13	12	0.7
FEB 21...	3.9	14	0.02	0.17	0.051	0.002	20	15	35	0.2
MAR 19...	4.0	14	0.02	0.26	0.028	0.003	10	14	36	0.2
APR 25...	3.4	12	0.02	0.48	0.028	0.001	10	13	26	1.1
MAY 21...	3.2	12	0.02	2.5	0.026	0.001	<10	10	21	0.4
JUN 20...	1.9	8	0.01	2.1	0.029	0.002	<10	6	2	0.6
JUL 25...	1.8	8	0.01	0.82	0.011	0.036	<10	9	4	1.9
AUG 13...	2.0	9	0.01	0.56	0.023	0.002	10	13	4	0.4
SEP 17...	2.1	10	0.01	0.98	0.033	0.002	<10	17	8	0.6

e - Based on mean daily discharge.

12186000 SAUK RIVER ABOVE WHITE CHUCK RIVER, NEAR DARRINGTON, WA

LOCATION.--Lat 48°10'08", long 121°28'10", on north line NE¼NE¼ sec.23, T.31 N., R.10 E., Snohomish County, Hydrologic Unit 17110006, Mount Baker National Forest, on right bank 0.6 mi upstream from White Chuck River, 8.4 mi southeast of Darrington, and at mile 32.5.

DRAINAGE AREA.--152 mi².

PERIOD OF RECORD.--August to November 1910 (fragmentary gage heights only), October 1917 to September 1922, August 1928 to current year.

REVISED RECORDS.--WSP 752: 1932. WSP 1286: 1918(M), 1920(M), 1921, 1922(M), 1932(M), 1934(M), 1946-47(M), 1949.

GAGE.--Water-stage recorder. Elevation of gage is 930 ft, from river-profile map. Prior to Nov. 18, 1910, nonrecording gage 0.5 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 30 to Dec. 12, Feb. 22-28, Mar. 6-19. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--62 years (water years 1918-22, 1929-85), 1,141 ft³/s, 101.94 in/yr, 826,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,100 ft³/s Dec. 26, 1980, gage height, 16.03 ft, from rating curve extended above 15,000 ft³/s; minimum, 115 ft³/s Nov. 15, 16, 30, Dec. 1, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1630	*6,470	*7.03	No other peak greater than base discharge.			

Minimum discharge, 196 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	690	780	319	365	379	884	1230	2350	1430	698	292
2	247	1500	680	300	347	365	1120	1640	2180	1660	598	377
3	234	2800	600	292	327	343	1330	2090	2160	1880	541	294
4	226	2200	560	296	302	321	1050	1880	3200	1880	539	267
5	253	1800	540	307	288	297	953	1530	2720	1740	493	524
6	290	1400	520	315	274	280	899	1340	2270	1450	447	2230
7	292	1700	800	324	265	265	862	1230	5220	1380	465	1170
8	292	1300	1800	332	255	250	883	1140	4570	1510	563	710
9	319	1100	1300	332	243	235	1260	1060	2830	1670	473	549
10	409	1000	950	324	235	230	1740	1080	2380	1590	439	493
11	563	1500	750	314	239	225	2320	1030	2330	1430	401	437
12	760	1400	660	302	276	220	2990	966	2750	1320	393	419
13	1570	1400	613	293	281	215	2400	930	2580	1170	385	390
14	1160	1300	957	296	275	215	2270	956	2700	1080	375	370
15	965	1100	1030	359	295	215	2180	971	2920	1110	378	370
16	880	950	879	392	309	225	2570	1420	2420	1080	363	365
17	785	850	753	416	305	250	2090	2480	2260	1070	350	976
18	692	800	630	473	295	270	1690	3260	2760	1060	346	634
19	613	900	543	544	285	287	1390	3380	3120	1010	340	491
20	530	1100	492	597	281	312	1150	3020	2720	997	317	415
21	465	950	456	626	277	335	1000	2710	2270	968	289	368
22	415	800	437	622	290	342	950	3250	2120	926	268	333
23	374	900	479	599	320	352	925	3840	1870	884	263	303
24	344	1000	488	573	370	377	916	3960	1530	780	282	280
25	1300	900	458	548	470	368	877	3390	1370	720	299	266
26	1250	780	436	521	430	348	821	2840	1500	670	296	258
27	958	740	413	495	380	327	1910	2620	1660	637	271	245
28	899	800	386	471	370	308	2060	2380	1620	619	258	227
29	846	920	366	446	---	291	1460	2010	1610	651	243	212
30	780	840	356	416	---	308	1230	1980	1520	675	249	200
31	730	---	340	387	---	508	---	1930	---	706	317	---
TOTAL	19704	35420	20452	12831	8649	9263	44180	63543	73510	35753	11939	14465
MEAN	636	1181	660	414	309	299	1473	2050	2450	1153	385	482
MAX	1570	2800	1800	626	470	508	2990	3960	5220	1880	698	2230
MIN	226	690	340	292	235	215	821	930	1370	619	243	200
CFSM	4.18	7.77	4.34	2.72	2.03	1.97	9.69	13.5	16.1	7.59	2.53	3.17
IN.	4.82	8.67	5.01	3.14	2.12	2.27	10.81	15.55	17.99	8.75	2.92	3.54
AC-FT	39080	70260	40570	25450	17160	18370	87630	126000	145800	70920	23680	28690

CAL YR 1984	TOTAL	393021	MEAN	1074	MAX	8800	MIN	226	CFSM	7.07	IN.	96.19	AC-FT	779600
WTR YR 1985	TOTAL	349709	MEAN	958	MAX	5220	MIN	200	CFSM	6.30	IN.	85.59	AC-FT	693600

12189500 SAUK RIVER NEAR SAUK, WA

LOCATION.--Lat 48°25'29", long 121°34'02", in NW¼NW¼ sec.19, T.34 N., R.10 E., Skagit County, Hydrologic Unit 17110006, on left bank, 4.4 mi southeast of Rockport, 7.6 mi southeast of Sauk, 7.8 mi downstream from Suiattle River, and at mile 5.4.

DRAINAGE AREA.--714 mi².

PERIOD OF RECORD.--August to October 1910 (fragmentary gage heights), March 1911 to August 1912, July 1928 to current year. Published as "near Suiattle Crossing, near Sauk" 1910-12.

REVISED RECORDS.--WSP 1286: 1929, 1937, 1939.

GAGE.--Water-stage recorder. Datum of gage is 266 ft above National Geodetic Vertical Datum of 1929 (from river-profile survey). Prior to Aug. 4, 1912, nonrecording gages at several sites 1.0 mi downstream to 5.0 mi upstream from present site at various datums. July 24, 1928, to Sept. 16, 1929, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records excellent. No regulation. Small diversion for millpond at Darrington and for domestic use. Summer flows augmented by glacier melt at source.

AVERAGE DISCHARGE.--57 years (water years 1929-85), 4,363 ft³/s, 82.98 in/yr, 3,161,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,600 ft³/s Dec. 26, 1980, gage height, 18.24 ft, from rating extended above 50,000 ft³/s; minimum, 572 ft³/s Dec. 5, 1929, but may have been less during period of ice effect Jan. 10-27, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	2200	*22,600	*9.46	No other peak greater than base discharge.			

Minimum discharge, 1,070 ft³/s Sept. 30, gage height, 3.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	2280	2730	1700	1870	2030	3500	4170	7950	5200	3290	1430
2	1290	5510	2440	1680	1820	1900	3890	5210	7620	5670	2800	1540
3	1330	9800	2240	1710	1640	1800	4650	6640	7580	7030	2550	1430
4	1440	7470	2100	1780	1480	1740	3760	5920	10300	7080	2640	1380
5	1970	5640	2000	1860	1560	1680	3230	5010	9400	6950	2470	2550
6	1630	4360	1920	1910	1500	1630	3010	4530	7740	5700	2290	7900
7	1600	5760	2640	1910	1520	1580	3080	4300	16800	5080	2300	3940
8	1770	4270	7550	1950	1420	1530	3260	4040	17200	5480	2440	2580
9	2390	3550	4780	1910	1380	1490	4130	3660	10400	6200	2200	2120
10	2850	3350	3580	1840	1390	1470	5530	3700	8700	6460	2090	2030
11	3650	5250	3000	1780	1540	1440	6720	3730	8200	5650	1950	1900
12	3820	4630	2720	1740	2040	1430	8440	3360	9220	5200	2010	1890
13	5160	4660	2480	1700	1640	1410	7250	3290	9130	4640	1990	1710
14	4060	4230	3840	1830	1580	1390	7030	3690	8870	4140	1940	1640
15	3150	3490	4670	2500	2060	1390	6640	3540	10200	4230	2050	1660
16	2620	3080	3360	2260	1860	1410	7650	4560	8930	4140	1960	1620
17	2300	2790	2860	2410	1700	1520	6640	7450	8110	4080	1920	2860
18	2070	2770	2450	2990	1610	1620	5450	9550	9610	4060	1920	2250
19	1900	3430	2320	3280	1600	1690	4650	10000	10900	3920	1880	1850
20	1770	3780	2240	3460	1640	1760	3980	9100	10100	3940	1790	1650
21	1670	3150	2160	3240	1590	1810	3540	8280	8320	3830	1580	1540
22	1600	2760	2230	2930	1780	1750	3250	10000	7860	3680	1540	1450
23	1540	3140	2830	2740	1940	1910	3420	11900	7020	3730	1580	1360
24	1560	3670	2550	2650	2580	2130	3360	12800	5630	3420	1720	1300
25	4180	3060	2300	2550	2680	1870	3160	11300	4860	3200	1790	1280
26	4610	2750	2300	2440	2280	1760	3050	9520	5220	2940	1770	1270
27	3240	2670	2210	2330	2050	1700	6320	8920	5940	2800	1600	1250
28	3080	3000	2060	2240	1980	1640	7100	8310	5990	2740	1570	1170
29	2800	3390	2020	2160	---	1580	5070	7270	6010	2880	1520	1120
30	2590	3070	1940	2030	---	1900	4350	7230	5720	2990	1520	1090
31	2410	---	1800	1930	---	3260	---	6800	---	3160	1520	---
TOTAL	77370	120760	86320	69440	49730	53220	145110	207780	259530	140220	62190	58760
MEAN	2496	4025	2785	2240	1776	1717	4837	6703	8651	4523	2006	1959
MAX	5160	9800	7550	3460	2680	3260	8440	12800	17200	7080	3290	7900
MIN	1290	2280	1800	1680	1380	1390	3010	3290	4860	2740	1520	1090
CFSM	3.50	5.64	3.90	3.14	2.49	2.40	6.77	9.39	12.1	6.33	2.81	2.74
IN.	4.03	6.29	4.50	3.62	2.59	2.77	7.56	10.83	13.52	7.31	3.24	3.06
AC-FT	153500	239500	171200	137700	98640	105600	287800	412100	514800	278100	123400	116600

CAL YR 1984 TOTAL 1555190 MEAN 4249 MAX 27600 MIN 1290 CFSM 5.95 IN. 81.03 AC-FT 3085000
WTR YR 1985 TOTAL 1330430 MEAN 3645 MAX 17200 MIN 1090 CFSM 5.11 IN. 69.32 AC-FT 2639000

RESERVOIRS IN SKAGIT RIVER BASIN, WA

12175000 ROSS RESERVOIR.--(See sta 12175000).

12176500 DIABLO RESERVOIR.--Lat 48°42'56", long 121°07'52", in SE¼ sec.5, T.37 N., R.13 E. (unsurveyed), Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Diablo Dam on Skagit River, 1.2 mi downstream from Thunder Creek, 6.0 mi northeast of Newhalem, and at mile 101.0. DRAINAGE AREA.--1,125 mi^2, includes 400 mi^2 in Canada. PERIOD OF RECORD.--October 1929 to current year. October 1929 to September 1938, monthly change in reservoir contents published with records for Skagit River at Newhalem. GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (city of Seattle datum). Prior to Oct. 1, 1964, at datum 0.28 ft higher.

REMARKS.--Reservoir is formed by concrete-arch dam, completed in 1930; storage began in October 1929. Usable storage, 8,820 acre-ft between elevations 1,195 ft, normal lower limit of operation, and 1,205 ft, top of taintor gates. Dead storage, below elevation 1,040 ft, 12,900 acre-ft. Crest of spillway is at elevation 1,187 ft. Water used by city of Seattle for power development at Diablo and Gorge powerplants. Capacity table furnished by city of Seattle. Figures given herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 90,600 acre-ft July 14, 1933, elevation, 1,206.5 ft; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 89,928 acre-ft July 31, elevation, 1,206.05 ft; minimum, 81,144 acre-ft June 20, elevation, 1,196.07 ft.

12177700 GORGE RESERVOIR.--Lat 48°41'53", long 121°12'25", in NW¼ sec.14, T.37 N., R.12 E., Whatcom County, Hydrologic Unit 17110005, Ross Lake National Recreation Area, at Gorge Dam on Skagit River, 2.4 mi upstream from Gorge powerplant at Newhalem, and at mile 96.6. DRAINAGE AREA.--1,159 mi^2, includes 400 mi^2 in Canada. PERIOD OF RECORD.--June 1960 to current year. GAGE.--Water-stage recorder; prior to Apr. 1, 1962, reference point on Gorge Dam or water-stage indicator in powerhouse. Datum of gage is 0.00 ft city of Seattle Gorge High Dam datum, and 1.792 ft below National Geodetic Vertical Datum of 1929 (Corps of Engineers' bench mark).

REMARKS.--Reservoir is formed by concrete arch and gravity dam, completed Dec. 27, 1960; storage began June 27, 1960. Usable storage, 2,115 acre-ft between elevations 865 ft, normal lower limit of operation, and 875 ft, top of gates. Lowest outlet at elevation 760 ft. No dead storage. Crest of spillway is at elevation 825 ft. Water used by city of Seattle for power development at Gorge powerplant. Capacity table furnished by city of Seattle. Figures given herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 9,761 acre-ft June 1, 1982, elevation, 880.01 ft; minimum since normal low operating level was reached in December 1960, 1,551 acre-ft July 20, 1965, elevation, 819.40 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 8,597 acre-ft Sept. 30, elevation, 875.46 ft; minimum, 6,054 acre-ft Mar. 29, elevation, 863.15 ft.

12191600 BAKER LAKE.--Lat 48°38'58", long 121°41'22", in SW¼ sec.31, T.37 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, at upper Baker Dam on Baker River near center of dam, 0.3 mi upstream from Sulphur Creek, 8.0 mi north of Concrete, and at mile 9.3. DRAINAGE AREA.--215 mi^2. PERIOD OF RECORD.--July 1959 to current year. GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete gravity dam, completed in June 1959; storage began July 9, 1959. Usable storage, 220,630 acre-ft between elevations 655 ft, minimum operating pool, and 724 ft, normal full pool. Dead storage below elevation 655 ft, 64,840 acre-ft. Crest of spillway is at elevation 694 ft. Water used by Puget Sound Power and Light Co. for power development. Capacity table furnished by Puget Sound Power and Light Co. Figures given herein represent total contents.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 287,930 acre-ft July 12, 1972, elevation, 724.49 ft; minimum since normal operating level was reached in August 1960, 102,621 acre-ft May 8, 1977, elevation, 674.81 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 279,969 acre-ft Aug. 5, elevation, 722.89 ft; minimum, 103,322 acre-ft Feb. 5, 6, elevation, 675.10 ft.

12193000 LAKE SHANNON.--Lat 48°32'53", long 121°44'22", in SW¼ sec.2, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110005, at Baker Dam on Baker River near left bank, 0.7 mi north of Concrete, and at mile 1.2. DRAINAGE AREA.--297 mi^2. PERIOD OF RECORD.--November 1925 to current year. GAGE.--Water-stage recorder; prior to Nov. 11, 1959, water-stage indicator in powerplant. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to March 1959, at datum 1.72 ft lower.

REMARKS.--Reservoir is formed by concrete arch and gravity dam, completed in June 1927; storage began in November 1925. Usable storage, 142,400 acre-ft between elevations 335 ft, minimum operating pool, and 438.6 ft, normal full pool. Dead storage unknown. Spillway crest is at elevation 424.9 ft. Water used by Puget Sound Power and Light Co. for power development. Prior to Nov. 11, 1959, gage-height record furnished by Puget Sound Power and Light Co. from powerplant log. Figures given herein represent contents above elevation 341.7 ft, center line of outlet tunnel.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 161,470 acre-ft Sept. 17, 1968, elevation, 439.50 ft; minimum since October 1953, 28,260 acre-ft Mar. 6, 1969, elevation, 363.7 ft, not determined prior to October 1953 because of incomplete records.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 158,847 acre-ft July 31, elevation, 438.32 ft; minimum, 69,027 acre-ft Mar. 17, elevation, 391.01 ft.

Reservoirs in Skagit River basin--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-ft)
	12176500 Diablo Reservoir			12177700 Gorge Reservoir		
Sept. 30	1,201.22	85,587	—	873.17	8,054	—
Oct. 31	1,201.13	85,508	-79	871.39	7,651	-403
Nov. 30	1,201.72	86,027	+519	872.31	7,857	+206
Dec. 31	1,198.54	83,254	-2,773	871.35	7,642	-215
CAL YR 1984	—	—	-51	—	—	-322
Jan. 31	1,199.41	84,003	+749	873.48	8,126	+484
Feb. 28	1,200.30	84,778	+775	872.49	7,898	-228
Mar. 31	1,199.70	84,255	-523	873.12	8,042	+144
Apr. 30	1,201.41	85,754	+1,499	871.82	7,746	-296
May 31	1,202.50	86,716	+962	873.59	8,151	+405
June 30	1,201.87	86,159	-557	873.52	8,135	-16
July 31	1,205.53	89,450	+3,291	873.29	8,082	-53
Aug. 31	1,202.68	86,876	-2,574	873.63	8,161	+79
Sept. 30	1,200.05	84,560	-2,316	871.85	7,753	-408
WTR YR 1985	—	—	-1,027	—	—	-301
	12191600 Baker Lake			12193000 Lake Shannon		
Sept. 30	720.43	267,975	—	433.64	148,683	—
Oct. 31	707.78	210,920	-57,055	434.13	149,729	+1,046
Nov. 30	704.03	195,601	-15,319	433.43	148,236	-1,493
Dec. 31	697.40	170,474	-25,127	428.49	137,933	-10,303
CAL YR 1984	—	—	-4,773	—	—	-2,215
Jan. 31	677.49	109,289	-61,185	415.77	113,248	-24,685
Feb. 28	676.71	107,309	-1,980	397.76	80,368	-32,880
Mar. 31	675.92	105,334	-1,975	393.83	73,691	-6,677
Apr. 30	699.69	178,880	+73,546	404.14	91,674	+17,983
May 31	707.69	210,544	+31,664	420.77	122,648	+30,974
June 30	721.07	271,065	+60,521	423.60	128,156	+5,508
July 31	722.29	277,020	+5,955	438.23	158,648	+30,492
Aug. 31	721.67	273,987	-3,033	434.69	150,931	-7,717
Sept. 30	721.58	273,549	-438	435.96	153,673	+2,742
WTR YR 1985	—	—	+5,574	—	—	+4,990

12190710 SWIFT CREEK NEAR CONCRETE, WA

LOCATION.--48°44'05", long 121°39'27", in SE¼NW¼ sec.32 T.38 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, Mt. Baker National Forest, on left bank 200 ft downstream from highway bridge, 14 mi north of Concrete, at mile 0.2, upstream from Baker Lake.

DRAINAGE AREA.--36.4 mi^2.

PERIOD OF RECORD.--August 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 750 ft, from topographic map.

REMARKS.--

WATER YEAR 1984.--Estimated daily discharges: Oct. 1-20, Nov. 20 to Jan. 9, Jan. 14-25, Feb. 3-19, Feb. 22 to Mar. 7, Apr. 21 to May 2, July 17 to Aug. 23. Records poor. No regulation or diversion upstream from station.

WATER YEAR 1985.--Estimated daily discharges: Dec. 30 to Jan. 16, Feb. 3-11, Apr. 19 to June 12, June 17 to Aug. 20. Records poor. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,740 ft^3/s Jan. 4, 1984, gage height, 10.91 ft; minimum daily, 65 ft^3/s Jan. 1, 1985.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1984.--Maximum discharge, 6,740 ft^3/s Jan. 4, gage height, 10.91 ft; minimum, 86 ft^3/s Sept. 29, 30.

WATER YEAR 1985.--Maximum discharge, 2,720 ft^3/s Oct. 10; maximum gage height, 9.38 ft June 7; minimum daily, 65 ft^3/s Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	532	170	240	182	230	182	245	548	938	780	396
2	155	1410	160	870	172	210	163	279	478	932	700	288
3	290	3630	155	2900	160	180	180	256	428	933	640	223
4	365	1720	150	5000	180	155	170	222	554	974	580	217
5	235	678	145	1300	240	160	180	197	760	1170	620	1030
6	180	821	140	840	280	170	165	187	703	853	540	854
7	170	607	140	795	230	185	195	188	860	620	460	387
8	150	492	200	620	345	212	200	569	985	609	560	417
9	145	462	210	400	345	250	185	546	642	725	680	366
10	140	599	275	368	285	279	205	415	578	796	600	547
11	145	1610	210	310	280	322	195	586	689	811	540	398
12	180	955	175	239	530	297	255	917	967	750	450	333
13	165	811	240	196	370	279	220	847	1350	662	370	270
14	165	861	255	175	260	273	325	1020	1500	765	320	227
15	145	3610	185	160	210	267	417	661	1330	956	330	206
16	140	2310	160	150	180	244	439	527	965	1160	400	209
17	210	1200	150	130	155	228	310	429	693	950	450	232
18	155	831	140	135	145	244	256	380	719	710	360	253
19	235	485	135	115	265	250	233	1120	775	580	280	241
20	470	400	135	115	1030	625	228	1070	885	450	270	228
21	342	310	130	120	821	1040	278	683	846	390	320	237
22	871	265	130	185	325	524	270	627	911	450	370	245
23	375	225	130	210	260	607	240	791	1140	620	290	213
24	256	485	125	670	235	439	190	628	1340	700	245	169
25	239	440	145	785	210	335	175	526	1370	860	219	141
26	217	335	155	439	180	279	165	878	1640	780	221	122
27	207	400	130	329	210	233	175	711	1440	680	788	107
28	167	285	130	524	240	222	185	852	1840	600	395	95
29	158	220	155	500	215	201	180	1270	1740	560	281	90
30	625	190	800	303	---	191	195	1290	1010	580	236	88
31	861	---	380	212	---	186	---	770	---	720	217	---
TOTAL	8323	27179	5940	19335	8540	9317	6756	19687	29686	23284	13512	8829
MEAN	268	906	192	624	294	301	225	635	990	751	436	294
MAX	871	3630	800	5000	1030	1040	439	1290	1840	1170	788	1030
MIN	140	190	125	115	145	155	163	187	428	390	217	88
CFSM	7.37	24.9	5.28	17.2	8.09	8.28	6.19	17.5	27.2	20.7	12.0	8.09
IN.	8.52	27.81	6.08	19.79	8.74	9.53	6.91	20.15	30.38	23.83	13.83	9.04
AC-FT	16510	53910	11780	38350	16940	18480	13400	39050	58880	46180	26800	17510

CAL YR 1983 TOTAL 153099 MEAN 419 MAX 3630 MIN 88 CFSM 11.5 IN. 156.68 AC-FT 303700
WTR YR 1984 TOTAL 180388 MEAN 493 MAX 5000 MIN 88 CFSM 13.6 IN. 184.61 AC-FT 357800

12190710 SWIFT CREEK NEAR CONCRETE, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	216	179	65	85	127	201	500	1050	760	470	186
2	89	822	153	68	81	116	304	740	1000	950	390	191
3	114	1280	132	80	78	105	656	740	1100	1050	430	167
4	249	763	117	100	74	99	436	580	1500	1000	430	169
5	292	530	104	100	72	88	357	450	1100	900	350	462
6	217	511	94	90	72	83	303	470	950	740	330	728
7	564	606	170	100	78	78	296	430	2100	780	360	442
8	468	406	483	100	74	75	339	380	1100	900	260	260
9	599	355	326	90	70	73	530	360	920	1100	280	201
10	2140	353	240	85	70	73	723	410	950	970	240	173
11	1170	625	187	80	74	73	1130	350	1000	860	260	171
12	1090	680	156	80	82	73	1500	290	1040	760	300	185
13	853	546	132	90	75	73	1030	320	841	680	290	182
14	586	390	169	135	73	73	930	450	1470	710	320	198
15	460	318	207	130	121	73	826	600	1230	730	330	185
16	359	263	165	105	109	76	998	900	917	760	320	425
17	293	223	133	113	86	100	696	1250	1100	800	330	369
18	245	284	112	205	77	121	535	1200	1450	820	330	216
19	216	402	97	247	73	138	450	1100	1400	830	270	171
20	195	372	90	262	73	137	320	960	1000	800	200	150
21	181	288	84	244	75	134	290	960	900	750	185	139
22	166	230	88	210	87	121	280	1150	780	680	182	126
23	158	343	125	186	104	116	350	1350	600	630	209	119
24	156	326	120	174	179	120	320	1350	500	560	241	123
25	906	249	99	159	202	114	270	1150	600	510	247	129
26	463	206	94	146	165	105	310	1050	760	510	222	133
27	347	186	85	135	137	96	900	1050	700	540	197	116
28	304	200	76	121	123	86	600	850	730	570	185	99
29	274	218	73	111	---	79	450	900	760	620	175	89
30	244	198	70	100	---	79	380	950	700	650	248	85
31	226	---	67	91	---	135	---	950	---	550	239	---
TOTAL	13711	12389	4427	4002	2669	3039	16710	24190	30248	23470	8820	6389
MEAN	442	413	143	129	95.3	98.0	557	780	1008	757	285	213
MAX	2140	1280	483	262	202	138	1500	1350	2100	1100	470	728
MIN	87	186	67	65	70	73	201	290	500	510	175	85
CFSM	12.2	11.4	3.93	3.55	2.62	2.70	15.3	21.5	27.7	20.8	7.84	5.86
IN.	14.03	12.68	4.53	4.10	2.73	3.11	17.10	24.76	30.98	24.02	9.03	6.54
AC-FT	27200	24570	8780	7940	5290	6030	33140	47980	60000	46550	17490	12670

CAL YR 1984 TOTAL 169473 MEAN 463 MAX 5000 MIN 67 CFSM 12.7 IN. 173.44 AC-FT 336100
WTR YR 1985 TOTAL 150064 MEAN 411 MAX 2140 MIN 65 CFSM 11.3 IN. 153.57 AC-FT 297700

12190718 PARK CREEK AT UPPER BRIDGE, NEAR CONCRETE, WA

LOCATION.--Lat 48°44'38", long 121°41'23", in NE¼NW¼ sec.31, T.38 N., R.9 E., Whatcom County, Hydrologic Unit 17110005, on left bank 80 ft downstream from U.S. Forest Service Road 1130 bridge, 17 mi north of Concrete, and 2.5 mi upstream from mouth at Baker Lake.

DRAINAGE AREA.--10.5 mi^2.

PERIOD OF RECORD.--June 1982 to current year

GAGE.--Water-stage recorder. Elevation of gage is 1,120 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 17-22, Jan. 1, Feb. 3-5. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,400 ft^3/s Jan. 4, 1984, computed by slope-area measurement, gage height, 10.77 ft from floodmark; minimum, 13 ft^3/s Feb. 11, 1985, gage height, 4.65 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 814 ft^3/s Oct. 10, gage height, 8.18 ft; minimum, 13 ft^3/s Feb. 11, gage height, 4.65 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	58	35	16	19	31	78	90	212	182	217	98
2	61	258	30	17	18	26	124	131	194	266	181	109
3	98	286	26	23	18	23	139	137	229	292	202	98
4	136	160	25	27	17	22	74	94	341	279	204	101
5	85	102	23	29	17	20	62	74	253	229	169	182
6	96	108	23	26	17	19	60	79	184	205	163	228
7	201	123	87	28	19	18	79	72	485	227	174	141
8	231	74	143	29	18	18	101	67	236	288	136	84
9	227	65	61	26	15	18	148	62	185	338	159	71
10	604	98	42	23	15	19	155	72	191	293	130	73
11	270	159	34	22	26	20	271	61	214	260	151	76
12	265	171	30	21	23	20	249	49	239	225	167	70
13	180	119	26	24	17	20	183	55	197	207	159	60
14	116	77	56	41	26	21	179	71	304	216	173	71
15	80	56	40	39	43	22	159	84	259	225	182	59
16	64	45	30	33	25	30	184	185	206	234	172	145
17	54	40	25	56	21	39	118	263	247	265	184	101
18	45	89	22	75	19	40	90	244	349	270	181	62
19	41	111	21	75	19	39	68	227	340	272	150	59
20	38	88	20	74	19	36	55	188	273	258	115	54
21	35	56	20	52	28	33	46	189	228	249	103	55
22	33	44	28	42	29	29	44	244	185	249	118	56
23	32	95	38	39	40	31	63	286	140	228	153	55
24	39	64	27	37	69	30	52	286	107	199	185	70
25	319	49	24	34	42	25	43	228	131	191	181	82
26	88	42	24	31	31	23	53	210	189	191	148	87
27	61	46	21	28	26	21	173	210	174	200	135	64
28	66	66	19	25	31	20	110	165	184	219	127	52
29	48	50	18	23	---	19	76	175	189	267	117	51
30	42	44	18	21	---	34	67	198	174	290	139	53
31	35	---	16	19	---	54	---	201	---	266	113	---
TOTAL	3734	2843	1052	1055	707	820	3303	4697	6839	7580	4888	2567
MEAN	120	94.8	33.9	34.0	25.3	26.5	110	152	228	245	158	85.6
MAX	604	286	143	75	69	54	271	286	485	338	217	228
MIN	32	40	16	16	15	18	43	49	107	182	103	51
CFSM	9.53	7.53	2.69	2.70	2.01	2.10	8.74	12.1	18.1	19.5	12.5	6.80
IN.	11.03	8.40	3.11	3.12	2.09	2.42	9.76	13.88	20.21	22.40	14.44	7.58
AC-FT	7410	5640	2090	2090	1400	1630	6550	9320	13570	15030	9700	5090

CAL YR 1984 TOTAL 43133 MEAN 118 MAX 1090 MIN 16 CFSM 9.37 IN. 127.45 AC-FT 85550
WTR YR 1985 TOTAL 40085 MEAN 110 MAX 604 MIN 15 CFSM 8.74 IN. 118.44 AC-FT 79510

BEST COPY AVAILABLE

12192600 BEAR CREEK BELOW TRIBUTARIES, NEAR CONCRETE, WA

LOCATION.--Lat 48°37'11", long 121°44'09", in NW¼SE¼SW¼ sec.11, T.36 N., R.8 E., Skagit County, Hydrologic Unit 17110005, on left bank 0.15 mi downstream from highway bridge, and 5.3 mi north of Concrete.

DRAINAGE AREA.--14.4 mi^2.

PERIOD OF RECORD.--April 1982 to current year.

REVISED RECORDS.--WDR WA-84-1: 1983(M).

GAGE.--Water-stage recorder. Elevation of gage is 900 ft (revised), from topographic map.

REMARKS.--Estimated daily discharges: Dec. 2-17, Dec. 29 to Jan. 4, June 30 to Aug. 20. Records fair except for period Oct. 25 to Jan. 4, which is poor. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft^3/s (revised) Dec. 3, 1982, gage height, 12.96 ft; minimum, 5.1 ft^3/s Aug. 24-30, 1985, gage height, 10.33 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 785 ft^3/s Nov. 3, gage height, 12.39 ft; minimum, 5.1 ft^3/s Aug. 24-30, gage height, 10.33 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	152	113	34	36	71	108	119	86	46	10	5.5
2	13	342	100	35	33	63	135	130	75	51	9.5	5.5
3	13	525	90	37	32	57	182	131	75	50	9.0	5.5
4	16	340	80	39	32	56	143	113	98	46	8.6	5.5
5	16	227	72	38	30	55	126	95	86	38	8.4	18
6	16	233	66	37	27	53	107	91	82	35	8.2	51
7	17	295	100	36	28	48	104	82	281	34	8.2	38
8	16	185	300	35	26	45	106	78	146	33	8.8	19
9	16	149	220	34	24	44	119	72	100	31	10	15
10	65	172	150	32	25	43	134	84	90	28	9.0	13
11	59	194	110	32	40	42	200	84	88	24	8.3	11
12	68	194	94	30	44	42	209	68	94	23	7.6	11
13	112	173	86	30	33	42	175	68	85	21	7.3	11
14	170	137	180	44	38	41	166	72	92	20	7.0	11
15	88	112	140	54	64	41	149	68	89	19	6.8	10
16	63	98	100	46	46	43	153	92	76	18	6.6	17
17	53	87	80	53	40	46	127	133	77	17	6.6	21
18	46	104	72	67	38	47	118	136	88	16	6.4	16
19	42	161	65	77	46	47	101	115	88	15	6.3	14
20	38	136	63	92	49	53	93	103	77	14	6.1	13
21	34	103	60	80	55	54	81	100	68	13	6.8	12
22	32	89	117	71	68	52	81	112	60	12	5.8	11
23	31	123	183	65	75	71	134	128	52	12	5.5	10
24	31	105	102	60	178	73	127	129	45	11	5.4	9.9
25	235	96	85	55	109	66	101	109	45	11	5.1	9.8
26	185	85	82	52	85	59	157	93	50	10	5.1	9.5
27	138	109	72	48	76	54	384	89	49	10	5.1	9.0
28	168	172	65	45	76	51	222	84	48	9.9	5.1	8.6
29	121	154	58	42	---	48	153	77	47	9.6	5.1	8.6
30	128	150	48	39	---	124	127	82	46	9.3	6.1	8.6
31	101	---	42	37	---	130	---	79	---	9.6	6.5	---
TOTAL	2145	5202	3195	1476	1453	1761	4322	3016	2483	696.4	220.3	408.0
MEAN	69.2	173	103	47.6	51.9	56.8	144	97.3	82.8	22.5	7.11	13.6
MAX	235	525	300	92	178	130	384	136	281	51	10	51
MIN	13	85	42	30	24	41	81	68	45	9.3	5.1	5.5
CFSM	4.81	12.0	7.15	3.31	3.60	3.94	10.0	6.76	5.75	1.56	.49	.94
IN.	5.54	13.44	8.25	3.81	3.75	4.55	11.17	7.79	6.41	1.80	.57	1.05
AC-FT	4250	10320	6340	2930	2880	3490	8570	5980	4930	1380	437	809

CAL YR 1984 TOTAL 39653.3 MEAN 108 MAX 900 MIN 8.1 CFSM 7.50 IN. 102.44 AC-FT 78650
WTR YR 1985 TOTAL 26377.7 MEAN 72.3 MAX 525 MIN 5.1 CFSM 5.02 IN. 68.14 AC-FT 52320

12192700 THUNDER CREEK NEAR CONCRETE, WA

LOCATION.--Lat 48°36'08", long 121°42'17", in SE¼SW¼SE¼ sec.13, T.36 N., R.8 E., Skagit County, Hydrologic Unit 17110005, on left bank 0.6 mi downstream from bridge, 5 mi north of Concrete, and 0.3 mi upstream from Lake Shannon.

DRAINAGE AREA.--22.4 mi^2.

PERIOD OF RECORD.--August 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, Jan. 4, 1984, gage height, 5.93 ft; minimum, 19 ft^3/s Aug. 25-27, 29, 30, Sept. 3, 4, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,010 ft^3/s June 7, gage height 3.59 ft; minimum, 19 ft^3/s Aug. 25-27, 29, 30, Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	74	94	57	64	79	133	220	349	150	36	20
2	28	277	87	60	59	72	179	318	307	177	33	20
3	27	499	84	77	53	65	262	346	313	173	32	20
4	38	285	79	75	55	65	170	253	446	166	30	19
5	41	186	76	76	56	64	146	198	363	141	29	87
6	34	161	74	75	52	61	141	190	313	122	28	241
7	36	244	141	74	51	58	144	185	731	123	29	89
8	34	160	303	73	50	56	168	175	554	115	32	49
9	50	125	146	70	48	54	231	162	377	118	37	41
10	159	122	109	67	47	51	319	172	342	103	33	36
11	156	202	108	66	49	50	384	161	345	90	28	35
12	241	237	99	64	61	49	424	142	363	85	27	38
13	216	236	93	64	52	49	355	149	322	77	25	35
14	149	168	123	76	50	49	358	182	383	74	24	34
15	113	132	116	87	78	49	326	174	375	70	23	42
16	95	108	101	83	59	49	354	303	291	66	23	61
17	85	102	92	100	57	54	270	473	304	60	22	86
18	75	110	82	124	59	57	163	523	392	55	22	49
19	72	145	82	109	58	59	153	476	403	53	21	42
20	65	138	81	105	59	62	164	412	323	50	21	37
21	61	110	77	115	58	62	149	386	272	48	21	36
22	57	102	86	105	70	61	140	476	217	45	21	34
23	56	174	114	102	78	67	144	551	174	43	20	32
24	59	139	92	97	125	68	138	501	152	40	20	31
25	278	111	84	94	113	65	130	441	155	39	20	29
26	125	103	81	86	88	62	149	372	177	37	19	29
27	96	99	76	81	81	62	502	359	171	36	19	33
28	93	106	70	76	78	58	375	329	163	35	20	27
29	78	106	67	72	---	60	245	300	163	34	20	28
30	73	104	64	65	---	83	201	341	148	32	21	29
31	66	---	58	64	---	120	---	324	---	34	24	---
TOTAL	2783	4865	3039	2539	1808	1920	7017	9594	9388	2491	780	1389
MEAN	89.8	162	98.0	81.9	64.6	61.9	234	309	313	80.4	25.2	46.3
MAX	278	499	303	124	125	120	502	551	731	177	37	241
MIN	27	74	58	57	47	49	130	142	148	32	19	19
CFSM	4.01	7.23	4.37	3.66	2.88	2.76	10.4	13.8	14.0	3.59	1.12	2.07
IN.	4.62	8.08	5.05	4.22	3.00	3.19	11.65	15.93	15.59	4.14	1.30	2.31
AC-FT	5520	9650	6030	5040	3590	3810	13920	19030	18620	4940	1550	2760

CAL YR 1984	TOTAL	59961	MEAN	164	MAX	1000	MIN	27	CFSM	7.32	IN.	99.58	AC-FT	118900
WTR YR 1985	TOTAL	47613	MEAN	130	MAX	731	MIN	19	CFSM	5.80	IN.	79.07	AC-FT	94440

12193500 BAKER RIVER AT CONCRETE, WA

LOCATION.--Lat 48°32'24", long 121°44'31", in NW¼NW¼ sec.11, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110005, on left bank at upstream side of fish barrier, 0.2 mi northeast of Concrete, 0.3 mi downstream from Baker River powerplant, and at mile 0.7.

DRAINAGE AREA.--297 mi².

PERIOD OF RECORD.--September 1910 to March 1915, September 1943 to current year.

REVISED RECORDS.--WSP 1286: 1911-13(M), 1945-46, drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 5, 1915, nonrecording gage at site 0.2 mi downstream at different datum. Sept. 1, 1943, to Jan. 22, 1958, water-stage recorder at site 700 ft upstream at datum 172.6 ft above National Geodetic Vertical Datum of 1929 (from river-profile survey). Jan. 23 to June 11, 1958, powerplant record. Supplementary water-stage recorder on left bank about 40 ft downstream from fish barrier and on tailrace of powerhouse at same datum.

REMARKS.--No estimated daily discharges. Records good except those below 100 ft³/s, which are poor. Flows on occasion may be affected by backwater from Skagit River during high flows. All diversions returned to river upstream from gage; at times, power generation is shut down for maintenance at Baker River or the fish-barrier dam causing the stage to drop below the control. Water is released through a valve-controlled pipe to the fish ladder located on the left bank just downstream from the gage and control. Flow regulated by Baker and Shannon Lakes (see sta 12191600 and 12191300).

AVERAGE DISCHARGE.--46 years (water years 1911-14, 1944-85), 2,667 ft³/s, 1,932,000 acre-ft/yr, adjusted for storage in Lake Shannon since November 1925, and Baker Lake since July 1959.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s Nov. 19, 1962, elevation, 186.6 ft, computation of peak flow over dam; minimum daily, 30 ft³/s Mar. 21-26, 1973, Apr. 26-28, May 7-9, 11, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,140 ft³/s Nov. 5, elevation, 174.91 ft; minimum daily, 79 ft³/s Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	529	2520	3050	1320	1820	762	159	110	3360	3910	2290	1110
2	1650	3840	3040	1840	2080	1610	108	108	3390	3910	3070	1020
3	875	3970	2930	2760	2090	1930	1900	1350	3060	3990	3060	952
4	1280	4070	1750	2300	3160	2170	2130	2960	3970	4020	2600	94
5	802	4070	1800	2200	1670	2470	2920	2550	3060	4020	1660	79
6	905	4060	1320	112	1480	2060	2500	2280	3910	4020	2040	3020
7	2190	4060	1000	2720	1550	891	1910	1940	3910	4020	1960	3100
8	2390	4070	4030	2460	1160	797	1750	1970	3900	4020	1970	2250
9	3520	4060	3960	2500	780	735	2270	1700	3510	4020	1980	2270
10	3830	4070	3140	2950	105	820	892	2320	2910	4020	2170	1340
11	3860	4060	2670	2700	2050	1040	1950	2150	2510	3690	2000	1340
12	3870	4060	3160	2880	1940	591	2350	1590	2420	3900	2090	1060
13	3870	4060	2950	3650	661	971	3040	1720	2380	3840	127	1430
14	3860	4070	2660	3360	1930	825	3050	2050	2640	2850	1680	783
15	3850	4080	3200	2180	1420	793	2610	1210	2640	3000	2000	727
16	3850	4060	3080	3620	1050	547	606	2310	3420	2060	1870	925
17	3840	2830	3060	3890	612	1840	2060	3920	3930	865	1470	1960
18	3830	1880	2770	2980	105	105	1970	3940	3990	3170	893	1800
19	3830	2530	2220	2790	969	466	608	3960	4000	3820	1450	1940
20	3830	2170	2000	2210	1020	498	456	3920	4010	2760	1400	1170
21	3740	2370	1980	2900	1540	1080	835	3910	4000	1860	1500	731
22	3770	2010	1980	3470	2140	1670	1220	3810	4010	2320	1360	507
23	3770	2230	397	3890	1920	106	788	3100	3990	121	1350	750
24	3780	3210	308	3940	1460	105	1410	3920	3990	121	1040	1120
25	3800	2720	119	3900	2070	969	1840	3930	3990	123	824	680
26	3800	2430	120	3710	1990	2520	1910	3970	3990	125	1260	669
27	3790	1800	1250	3800	2110	2480	691	3180	3980	126	1410	834
28	3750	2160	1040	1270	2210	1040	124	2790	3980	127	1350	715
29	3340	2990	1910	670	---	1000	1270	2800	3390	130	1410	500
30	3030	2270	1900	444	---	817	116	2410	2660	431	1400	829
31	3190	---	1730	80	---	776	---	3280	---	433	1170	---
TOTAL	96221	96780	66524	79496	43092	34484	45443	81158	104900	75822	51854	35705
MEAN	3104	3226	2146	2564	1539	1112	1515	2618	3497	2446	1673	1190
MAX	3870	4080	4030	3940	3160	2520	3050	3970	4010	4020	3070	3100
MIN	529	1800	119	80	105	105	108	108	2380	121	127	79
AC-FT	190900	192000	132000	157700	85470	68400	90140	161000	208100	150400	102900	70820
MEAN†	2193	2945	1570	1168	911	972	3054	3636	4608	3037	1498	1228
CFSM†	7.38	9.92	5.29	3.93	3.07	3.27	10.3	12.2	15.5	10.2	5.04	4.13
IN.†	8.52	11.06	6.10	4.53	3.20	3.77	11.47	14.12	17.30	11.79	5.82	4.61
AC-FT†	134900	175200	96570	71830	50610	59750	181700	223600	274100	186800	92150	73080

CAL YR 1984 TOTAL 994015 MEAN 2716 MAX 14100 MIN 86 AC-FT 1972000 MEAN† 2714 CFSM† 9.14 IN.† 124.05 AC-FT† 1965000
WTR YR 1985 TOTAL 811479 MEAN 2223 MAX 4080 MIN 79 AC-FT 1610000 MEAN† 2239 CFSM† 7.54 IN.† 102.23 AC-FT† 1621000

† Adjusted for change in contents of Baker Lake and Lake Shannon.

12194000 SKAGIT RIVER NEAR CONCRETE, WA

LOCATION.--Lat 48°31'28", long 121°46'11", in SE¼NE¼ sec.16, T.35 N., R.8 E., Skagit County, Hydrologic Unit 17110007, on right bank at Dalles Bridge 1.3 mi southwest of Concrete, 2.4 mi downstream from Baker River, and at mile 54.1.

DRAINAGE AREA.--2,737 mi^2, of which 400 mi^2 is in Canada.

PERIOD OF RECORD.--September 1924 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1736: 1948. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 130.0 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 10, 1924, nonrecording gage 200 ft upstream and Dec. 10, 1924, to Sept. 30, 1937, water-stage recorder at present site; both gages at datum 12.7 ft higher.

REMARKS.--Estimated daily discharges: Sept. 2-9. Records excellent. Flow regulated by Ross Reservoir (station 12175000), and Diablo and Gorge Reservoirs, Baker Lake, and Lake Shannon (stations 12176500, 12177700, 12191600, 12193000).

AVERAGE DISCHARGE.--61 years, 15,080 ft^3/s, 10,925,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 154,000 ft^3/s Nov. 27, 1949, gage height, 40.8 ft; minimum, probably less than 2,160 ft^3/s during period Oct. 1-24, 1925, when recorder was not operating and gates in Baker River Dam were first closed; minimum daily recorded, 2,610 ft^3/s Nov. 14, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of about 1815 reached a stage of 6[illegible].3 ft present datum, from floodmarks at site 200 ft upstream, discharge about 500,000 ft^3/s. Records of other floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,100 ft^3/s June 7, gage height, 25.20 ft; minimum, 3,660 ft^3/s Sept. 29; minimum gage height, 13.16 ft Sept. 29; minimum daily discharge, 4,380 ft^3/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4900	11400	12400	8120	9590	10000	9140	10500	20100	16600	13200	6160
2	6620	14900	12100	9770	9100	10600	9440	12100	19000	19300	11900	5600
3	5890	23900	12200	10800	7800	9500	14000	16400	18900	22100	11300	6000
4	5990	20400	10800	10700	10200	10100	13400	16900	25200	21900	10400	4900
5	5960	17700	9780	9590	9870	11200	12800	14000	22900	21800	9640	7600
6	5510	15800	9020	6200	9760	10900	11800	12800	19700	21200	9920	18800
7	6700	20400	9750	9360	9180	9560	10900	11500	33400	19700	10600	13300
8	7430	19300	19300	9860	8260	10200	11100	11600	36700	21000	9950	9100
9	11100	14900	15900	10000	7040	8710	12600	11000	24700	22000	9710	9450
10	13200	12900	14200	10700	6940	7670	13800	11600	20600	21600	10400	8760
11	15800	15100	12600	11300	9610	7920	16800	11900	19600	19600	9110	8660
12	15400	15000	13000	10000	10700	7400	21200	9670	21600	20200	9170	7790
13	17400	15600	11900	9180	7640	7160	20300	9830	22100	18800	7270	7250
14	14400	18300	12600	10100	9150	6020	18800	11500	21900	15700	8570	6120
15	13000	17100	14900	10100	8540	6320	17300	10900	25600	16500	8990	5460
16	12900	13900	11900	11000	6760	7200	17100	13600	23300	15300	9050	5910
17	11900	11400	11900	11900	6670	8540	16600	21800	22000	14400	8410	10200
18	11500	9430	12600	12100	7660	5870	14800	24900	25100	16700	6910	8930
19	11300	11700	11100	12600	8820	6690	11900	25700	27500	18000	7770	7620
20	10800	11900	10600	11500	8060	7480	10200	23700	27000	15600	8250	6590
21	9700	11400	10800	13400	8580	9030	9480	21400	23800	13000	6650	5820
22	9390	10400	9770	14200	10500	9800	9310	25000	23300	14100	6990	4840
23	10200	11300	8550	15100	9510	8440	9810	28300	21100	12300	6680	5170
24	11000	13900	8790	15500	11300	9120	9940	31200	19500	11700	6190	5720
25	14900	11800	6670	14000	13000	9420	10800	28300	17500	12500	5950	4830
26	16400	11500	7220	12600	12100	10900	10400	24400	18300	11300	6670	5030
27	13400	11100	9350	12600	11600	10800	15700	22100	18300	10600	7010	5440
28	12400	12200	8990	11100	11500	9160	17700	21000	18100	9600	7480	4480
29	11700	13500	8090	10300	---	9990	13400	18500	16600	10300	7490	4380
30	12600	12800	8810	8710	---	9500	10700	18400	15300	11900	7920	5040
31	12700	---	9230	7880	---	9640	---	18200	---	12200	7660	---
TOTAL	342090	430930	344820	340270	259440	274840	401220	548700	668700	507500	267210	214950
MEAN	11040	14360	11120	10980	9266	8866	13370	17700	22290	16370	8620	7165
MAX	17400	23900	19300	15500	13000	11200	21200	31200	36700	22100	13200	18800
MIN	4900	9430	6670	6200	6670	5870	9140	9670	15300	9600	5950	4380
AC-FT	678500	854700	684000	674900	514600	545100	795800	1088000	1326000	1007000	530000	426400

CAL YR 1984 TOTAL 5405300 MEAN 14770 MAX 79600 MIN 4060 AC-FT 10721000
WTR YR 1985 TOTAL 4600670 MEAN 12600 MAX 36700 MIN 4380 AC-FT 9125000

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA
(National stream quality accounting network station)

LOCATION.--Lat 48°26'42", long 122°20'03", in SE¼SE¼ sec.7, T.34 N., R.4 E., Skagit County, Hydrologic Unit 17110007, on draw west of and 150 ft downstream from bridge on former U.S. Highway 99, 1.5 mi north of Skagit Valley Junior College in Mount Vernon, and at mile 15.7.

DRAINAGE AREA.--3,093 mi^2, of which 400 mi^2 is in Canada.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1940 to current year. Monthly discharge only October 1940, published in WSP 1316.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929. Supplementary water-stage recorder in bridge pier 0.2 mi downstream from base gage from Dec. 3, 1957, to Oct. 15, 1964.

REMARKS.--Estimated daily discharges: Oct. 16-18, Nov. 3-7, 22, 23, 25-28, Apr. 18-25, May 4-13, Sept. 14-16, 22-25. Water-discharge records good. Flow regulated by Ross Reservoir (station 12175000) and Diablo and Gorge Reservoirs, Baker Lake, and Lake Shannon (stations 12176500, 12177700, 12191600, 12193000). Small diversions for domestic and municipal use.

AVERAGE DISCHARGE.--45 years, 16,650 ft^3/s, 12,060,000 acre-ft, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 144,000 ft^3/s Feb. 11, 1951, elevation, 36.85 ft; minimum, 2,740 ft^3/s Oct. 26, 1942, elevation, 7.37 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1906 reached a stage of 37 ft, from Great Northern Railway highwater profile, discharge 180,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 50,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 8	1015	*43,700	*22.72				

Minimum discharge, 4,510 ft^3/s Sept. 28, gage height 8.56 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5390	12500	15200	9420	9370	12700	12000	12500	21500	16600	12900	7390
2	6640	16800	14200	9720	10600	11300	12100	13800	21500	18500	13100	6600
3	7160	27400	14000	11800	9050	11700	15000	16900	20500	21300	11700	6570
4	6790	24200	12800	11500	9860	10400	16300	19800	24300	22300	10800	6440
5	7010	20900	11700	11600	10800	12300	15400	17000	26200	21800	9810	5860
6	6550	19000	11200	9220	10800	12100	14100	15600	23200	21900	9900	16400
7	6750	23500	11000	8850	10600	11500	13400	13800	27900	20500	10600	19000
8	7500	23100	22700	11300	9590	11200	12900	13900	41500	20600	10300	12200
9	10300	19200	21400	10600	8580	10000	14400	13400	29900	21900	9960	10300
10	13300	16200	17600	11600	7860	9750	16200	13800	23200	22100	10000	9610
11	17200	18100	15300	11700	9570	8510	18000	14100	21500	20000	10600	9500
12	17200	18900	15600	11900	11800	8930	23200	12900	21600	20500	8920	8850
13	18300	18500	14600	10500	10900	8350	23600	11800	23500	19700	9080	8210
14	17400	20700	14700	10800	9520	7820	22100	13000	21900	17100	8060	7800
15	14900	19800	19900	11500	10900	7060	20600	13000	25800	15900	8870	6950
16	14500	17100	15600	12100	9140	7900	19800	13600	25400	16600	9580	6200
17	13800	14300	14000	12600	7890	8840	19100	20800	22800	15300	8970	9450
18	12900	12200	14600	13300	8860	8030	18000	25800	24500	15700	8280	11400
19	12200	15200	13200	14900	9350	7640	14900	27000	27300	18100	7580	8130
20	12000	15500	12600	13700	10100	8290	12800	26200	28100	16700	8340	8320
21	11000	14200	12400	14500	9020	9460	11200	24000	25200	14500	7220	7180
22	10100	13300	12100	15900	11300	10200	11100	25200	24300	14200	7460	6400
23	10900	14000	12700	15900	11500	9910	11500	28500	22200	13200	7370	5600
24	11400	16800	11700	16800	13100	10700	11600	32200	21200	12400	7040	6400
25	13600	15600	9710	16000	15200	10600	12600	31500	18100	12600	6580	5900
26	19400	14200	9240	14200	14300	10800	11300	27700	19300	11900	6530	5410
27	15800	13800	10400	13600	13000	11700	18100	24700	18500	11500	7100	6150
28	14600	14800	11100	13200	13000	11300	23700	23600	19000	10500	7550	5210
29	13200	17200	9390	11600	---	10100	16900	21400	17700	9830	7810	5010
30	13600	16100	9940	10200	---	10700	14200	21400	15600	11500	8090	5360
31	14000	---	10400	9540	---	12600	---	20800	---	12400	8140	---
TOTAL	375390	523100	420980	380050	295560	312390	476100	609700	703200	517630	278240	243800
MEAN	12110	17440	13580	12260	10560	10080	15870	19670	23440	16700	8975	8127
MAX	19400	27400	22700	16800	15200	12700	23700	32200	41500	22300	13100	19000
MIN	5390	12200	9240	8850	7860	7060	11100	11800	15600	9830	6530	5010
AC-FT	744600	1038000	835000	753800	586200	619600	944300	1209000	1395000	1027000	551900	483600

CAL YR 1984 TOTAL 6227850 MEAN 17020 MAX 81300 MIN 5390 AC-FT 12353000
WTR YR 1985 TOTAL 5136140 MEAN 14070 MAX 41500 MIN 5010 AC-FT 10188000

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-70, 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1974 to November 1981.
WATER TEMPERATURES: July 1962 to August 1970, February 1974 to November 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)
NOV 28...	1145	14400	62	7.40	5.5	7.5	12.5	100	48	--	27	3
JAN 29...	1540	12200	75	7.70	4.0	1.0	13.8	104	K4	--	32	--
MAR 06...	1000	11300	71	7.80	5.0	4.0	12.6	99	K9	K5	33	3
MAY 16...	1200	13500	59	7.10	10.0	2.1	11.4	100	K4	K6	25	1
JUL 17...	1430	14600	42	7.90	15.0	5.1	--	--	K10	>10000	20	--
SEP 25...	1045	5260	61	7.10	13.0	1.5	10.5	99	26	K10	25	2

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 28...	8.1	1.6	1.4	10	0.1	0.8	24	5.6	0.7	<0.1	6.9	35
JAN 29...	10	1.8	1.5	9	0.1	0.6	34	5.6	1.0	<0.1	7.6	44
MAR 06...	10	1.9	1.9	11	0.2	0.7	30	6.4	1.0	<0.1	8.4	50
MAY 16...	7.7	1.5	1.7	12	0.2	0.9	24	6.1	1.0	<0.1	7.0	40
JUL 17...	6.2	1.1	1.1	11	0.1	0.3	34	3.8	0.7	0.2	5.8	23
SEP 25...	7.4	1.5	1.5	11	0.1	0.6	23	5.8	1.1	<0.1	7.0	36

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
NOV 28...	40	0.05	1360	4	0.21	0.02	<0.2	0.02	<0.01	<0.01	30
JAN 29...	49	0.06	1450	3	0.12	0.04	<0.2	<0.01	<0.01	<0.01	10
MAR 06...	48	0.07	1530	6	0.14	0.03	0.4	0.01	0.01	<0.01	<10
MAY 16...	40	0.05	1460	1	0.12	0.05	0.2	0.02	<0.01	0.01	--
JUL 17...	40	0.03	907	1	<0.10	0.02	0.3	0.02	<0.01	<0.01	<10
SEP 25...	39	0.05	511	4	<0.10	0.06	0.2	0.01	<0.01	0.02	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

BEST COPY AVAILABLE

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 28...	<1	16	<0.5	<1	7	<3	3	50	<1	<4	8
JAN 29...	<1	16	<0.5	2	1	<3	4	42	2	<4	11
MAR 06...	<1	14	<0.5	<1	<1	<3	3	51	2	<4	3
MAY 16...	--	--	--	--	--	--	--	--	--	--	--
JUL 17...	<1	11	<0.5	<1	<1	3	7	29	3	<4	5
SEP 25...	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 28...	<0.1	<10	1	<1	1	42	<6	22	20	778	41
JAN 29...	<0.1	<10	<1	<1	1	45	<6	6	26	856	10
MAR 06...	<0.1	<10	3	<1	<1	48	<6	11	12	366	30
MAY 16...	--	--	--	--	--	--	--	--	34	1240	16
JUL 17...	0.2	<10	3	<1	<1	30	<6	14	22	867	39
SEP 25...	--	--	--	--	--	--	--	--	16	227	--

12202500 WHATCOM LAKE NEAR BELLINGHAM, WA

LOCATION.--Lat 48°44'55", long 122°23'40", in SW¼SW¼ sec.26, T.38 N., R.3 E., Whatcom County, Hydrologic Unit 17110002, on west shore, 1.0 mi east of Bellingham, near Strawberry Point, at Geneva.

DRAINAGE AREA.--55.9 mi² at outlet of lake.

PERIOD OF RECORD.--February 1913 to September 1914, October 1978 to current year.

GAGE.--Staff gage. Datum of gage is at City of Bellingham datum (revised), 7.03 ft below National Geodetic Vertical Datum of 1929 (levels by city of Bellingham).

REMARKS.--Lake is formed by concrete control dam completed to elevation 315.00 ft in 1937. The dam has three 18 ft by 6 ft tainter gates that raise from the bottom. Water is diverted from Whatcom Lake at intake structure located near the intersection of Cable and Whatcom Boulevards. Water use is for both municipal and industrial supply for the city of Bellingham. Since April 1962, at times water is diverted from Middle Fork Nooksack River to Whatcom Lake via Anderson Creek to supplement Whatcom Creek. Chemical analyses water years 1964-70.

COOPERATION.--Record furnished by city of Bellingham.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed gage height, 315.75 ft Feb. 19, 1913; minimum observed, 310.37 ft Oct. 31, 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum observed gage height, 316.22 ft Feb. 1, 1971; minimum observed, 308.38 ft Dec. 5, 1957, record furnished by city of Bellingham.

EXTREMES FOR CURRENT YEAR.--Maximum observed gage height, 314.34 ft June 10; minimum observed, 310.88 ft Feb. 4.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312.03	---	---	---	---	---	311.58	313.50	---	313.70	---	---
2	---	---	---	311.46	---	---	---	---	---	---	---	---
3	---	---	311.80	---	---	---	311.78	---	314.10	---	---	311.94
4	---	---	---	---	310.88	311.25	---	---	---	---	---	---
5	---	312.40	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	313.75	---	---	312.64	---
7	---	---	---	311.31	---	---	---	---	---	---	---	---
8	311.80	---	---	---	---	---	312.05	---	---	313.53	---	---
9	---	---	---	---	---	---	---	---	---	---	---	311.95
10	---	---	311.83	---	---	---	---	---	314.34	---	---	---
11	---	---	---	---	310.95	311.14	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	312.48	---
13	---	311.94	---	---	---	---	---	313.90	---	---	---	---
14	---	---	---	311.20	---	---	---	---	---	---	---	---
15	311.78	---	---	---	---	---	312.20	---	---	313.30	---	---
16	---	---	---	---	---	---	---	---	---	---	---	311.75
17	---	---	312.34	---	---	---	---	---	---	---	---	---
18	---	---	---	---	311.04	---	---	---	314.00	---	---	---
19	---	311.72	---	---	---	311.07	---	---	---	---	312.30	---
20	---	---	---	---	---	---	---	313.95	---	---	---	---
21	---	---	---	311.23	---	---	---	---	---	---	---	---
22	311.45	---	---	---	---	---	312.27	---	---	313.13	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	311.47
25	---	---	---	---	311.19	311.27	---	---	313.82	---	---	---
26	---	311.70	311.80	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	312.11	---
28	---	---	---	311.20	---	---	---	314.00	---	---	---	---
29	311.45	---	---	---	---	---	313.35	---	---	312.85	---	---
30	---	---	---	---	---	---	---	---	---	---	---	311.30
31	---	---	311.62	---	---	---	---	---	---	---	---	---

0224

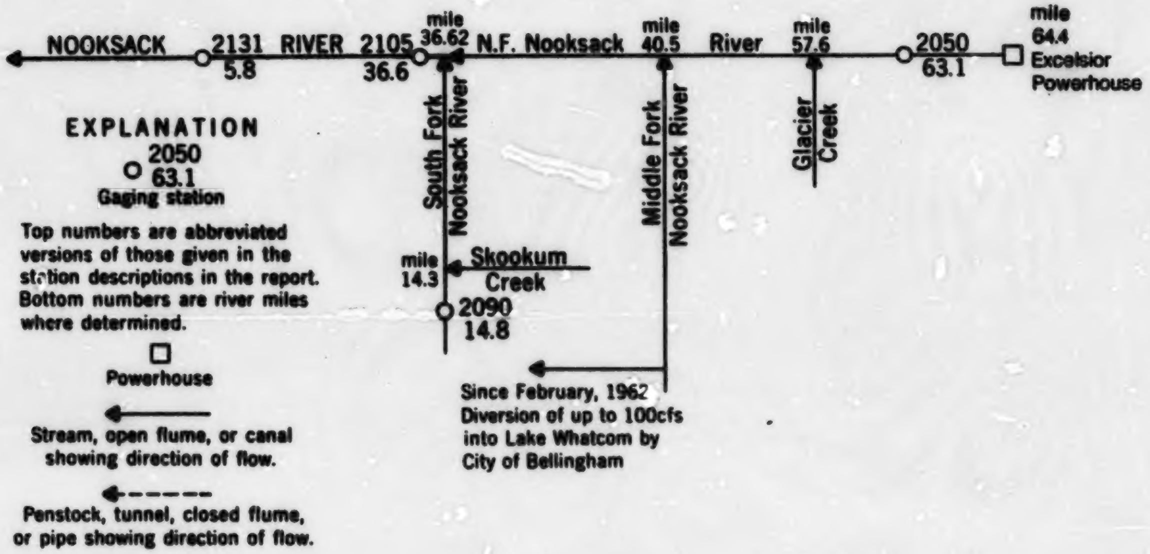
NOOKSACK
2131
5.8
RIVER
2105
36.6
mile
36.62
N.F. Nooksack
mile
40.5
River
mile
57.6
2050
63.1
mile
64.4
Excelsior
Powerhouse
South Fork
Nooksack River
Middle Fork
Nooksack River
Glacier
Creek
mile
14.3
Skookum
Creek
2090
14.8
Since February, 1962
Diversion of up to 100cfs
into Lake Whatcom by
City of Bellingham
EXPLANATION
2050
63.1
Gaging station
Top numbers are abbreviated
versions of those given in the
station descriptions in the report.
Bottom numbers are river miles
where determined.
Powerhouse
Stream, open flume, or canal
showing direction of flow.
Penstock, tunnel, closed flume,
or pipe showing direction of flow.

Figure 18.--Gaging stations in Nooksack River basin.

12205000 NORTH FORK NOOKSACK RIVER BELOW CASCADE CREEK, NEAR GLACIER, WA

LOCATION.--Lat 48°54'22", long 121°50'35", in SE¼SW¼ sec.36, T.40 N., R.7 E., Whatcom County, Hydrologic Unit 17110004, Mt. Baker National Forest, on right bank 0.2 mi downstream from Cascade Creek, 0.3 mi downstream from Deadhorse Creek, 4.8 mi east of Glacier, 5.5 mi upstream from Glacier Creek, and at mile 63.1.

DRAINAGE AREA.--105 mi².

PERIOD OF RECORD.--October 1937 to current year. Published as "Nooksack River above Cascade Creek, near Glacier" 1937-58 and as "Nooksack River below Cascade Creek, near Glacier" 1958-66.

REVISED RECORDS.--WSP 1092: 1946.

GAGE.--Water-stage recorder. Elevation of gage is 1,245 ft, from river-profile map. Supplementary gage on left bank, at datum 1.19 ft lower, used as principal gage prior to Oct. 1, 1953, and Oct. 8, 1958, to Sept. 30, 1959.

REMARKS.--Estimated daily discharges: Feb. 1-6. Records good. No diversion upstream from station. Some regulation at low flow by powerplant at Excelsior. Summer flows augmented by glacier melt.

AVERAGE DISCHARGE.--48 years, 775 ft³/s, 100.23 in/yr, 561,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft³/s Nov. 26, 1949, gage height, 10.50 ft supplementary gage, from rating curve extended above 2,900 ft³/s on basis of contracted-opening measurement at gage height 8.13 ft, supplementary gage; minimum, 60 ft³/s Mar. 12, 1969; minimum daily, 98 ft³/s Jan. 8, 1979, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	1800	*4,400	*6.18	No other peak greater than base discharge.			

Minimum discharge, 158 ft³/s Mar. 13, gage height, 1.23 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	462	378	197	250	238	336	594	1730	1160	930	433
2	291	1080	348	198	230	222	462	758	1690	1490	816	443
3	361	1650	326	197	207	212	590	963	1710	1770	794	409
4	613	1130	311	199	201	208	474	824	2510	1800	817	429
5	486	919	300	203	195	199	430	711	2000	1570	733	664
6	462	823	289	200	204	191	416	693	1540	1260	687	910
7	912	903	411	199	217	183	440	636	2700	1260	755	625
8	1140	724	701	204	200	177	527	603	2050	1520	743	465
9	1330	640	482	201	194	175	689	572	1540	1720	652	400
10	3690	663	414	199	198	171	887	595	1460	1680	615	386
11	1950	874	367	193	222	167	1220	560	1520	1480	592	382
12	1420	1040	347	193	231	167	1270	512	1780	1350	649	410
13	1290	966	317	192	197	165	1180	501	1680	1170	613	400
14	939	757	439	225	204	169	1160	515	2060	1100	612	397
15	752	638	413	248	268	170	1100	533	2090	1130	645	374
16	647	566	346	238	218	176	1310	801	1700	1180	626	462
17	570	512	307	329	202	193	1090	1470	1690	1200	650	488
18	512	590	261	512	194	210	884	1800	2200	1190	656	371
19	470	616	259	523	193	224	737	1730	2420	1220	633	317
20	437	585	268	551	189	231	637	1500	2090	1210	540	294
21	409	509	257	494	192	229	567	1390	1800	1160	471	293
22	386	463	261	444	229	218	522	1660	1610	1140	461	276
23	377	620	272	411	229	239	534	2030	1290	1140	503	254
24	376	590	247	388	312	245	500	2340	994	1000	602	274
25	1090	503	236	365	286	218	461	2170	944	927	617	283
26	696	451	232	344	255	209	475	1860	1140	871	550	292
27	571	460	216	328	235	202	901	1890	1280	880	503	253
28	537	477	209	309	240	194	791	1710	1290	921	484	222
29	486	453	202	290	---	187	641	1470	1320	1010	452	206
30	459	417	195	268	---	217	581	1400	1220	1040	513	198
31	416	---	195	261	---	278	---	1410	---	1000	511	---
TOTAL	24343	21081	9806	9103	6192	6284	21812	36201	51048	38549	19425	11610
MEAN	785	703	316	294	221	203	727	1168	1702	1244	627	387
MAX	3690	1650	701	551	312	278	1310	2340	2700	1800	930	910
MIN	268	417	195	192	189	165	336	501	944	871	452	198
CFSM	7.48	6.70	3.01	2.80	2.10	1.93	6.92	11.1	16.2	11.8	5.97	3.69
IN.	8.62	7.47	3.47	3.23	2.19	2.23	7.73	12.83	18.09	13.66	6.88	4.11
AC-FT	48280	41810	19450	18060	12280	12460	43260	71800	101300	76460	38530	23030

CAL YR 1984 TOTAL 293064 MEAN 801 MAX 7500 MIN 195 CFSM 7.63 IN. 103.83 AC-FT 581300
WTR YR 1985 TOTAL 255454 MEAN 700 MAX 3690 MIN 165 CFSM 6.67 IN. 90.50 AC-FT 506700

0226

12209000 SOUTH FORK NOOKSACK RIVER NEAR WICKERSHAM, WA

LOCATION.--Lat 48°39'52", long 122°09'56", in lot 2, SW¼SW¼ sec.26, T.37 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 0.5 mi upstream from Skookum Creek, 3.7 mi east of Wickersham, and at mile 14.8.

DRAINAGE AREA.--103 mi².

PERIOD OF RECORD.--October 1933 to October 1977, June to September 1978, October 1980 to current year (seasonal records only).

REVISED RECORDS.--WSP 832: 1935-36.

GAGE.--Water-stage recorder. Elevation of gage is 385 ft, from river-profile map. Prior to July 9, 1934, nonrecording gage, at same site and datum.

REMARKS.--No estimated daily discharges. Records good except those above 2,000 ft³/s, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--44 years (water years 1934-77), 741 ft³/s, 97.70 in/yr, 536,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s Nov. 3, 1955, gage height, 13.40 ft, from rating curve extended above 11,000 ft³/s; minimum, 66 ft³/s Oct. 9, 1940, Sept. 11-13, 1944; minimum gage height, 1.80 ft Sept. 16, 17, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period June to October, 6,040 ft³/s Oct. 27, gage height, 7.78 ft; minimum, 102 ft³/s Aug. 30, gage height, 2.06 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR JUNE TO OCTOBER 1985
MEAN VALUES

DAY	JUN	JUL	AUG	SEP	OCT
1	1250	438	196	110	113
2	1000	496	172	122	115
3	984	575	163	111	167
4	1680	549	154	108	132
5	1370	504	151	423	123
6	1100	409	144	1150	162
7	2720	391	147	838	153
8	1690	433	182	373	130
9	1120	461	178	249	122
10	991	443	192	198	117
11	989	379	162	170	475
12	1060	356	150	157	345
13	965	314	141	156	307
14	1020	299	135	158	2420
15	1030	302	131	167	2070
16	854	299	128	328	1440
17	839	293	125	569	839
18	1070	282	121	290	866
19	1120	268	119	217	1770
20	964	258	118	183	1540
21	777	246	117	167	848
22	704	238	114	155	1290
23	577	227	110	146	1410
24	483	210	109	139	2210
25	435	199	108	133	2460
26	511	193	106	129	2490
27	549	188	106	124	5120
28	495	184	105	119	2390
29	507	180	104	116	1390
30	480	176	104	114	1250
31	---	176	121	---	972
TOTAL	29334	9966	4213	7419	35236
MEAN	978	321	136	247	1137
MAX	2720	575	196	1150	5120
MIN	435	176	104	108	113
CFSM	9.50	3.12	1.32	2.40	11.0
IN.	10.59	3.60	1.52	2.68	12.73
AC-FT	58180	19770	8360	14720	69890

12210500 NOOKSACK RIVER AT DEMING, WA

LOCATION.--Lat 48°48'38", long 122°12'13", in lot 12, NE¼SE¼ sec.6, T.38 N., R.5 E., Whatcom County, Hydrologic Unit 17110004, on left bank 800 ft downstream from South Fork, 1.1 mi southeast of Deming, and at mile 36.6.

DRAINAGE AREA.--584 mi², includes 5 mi² in Canada.

PERIOD OF RECORD.--September 1910 to March 1911 (gage heights only), July 1935 to September 1957, October 1957 to September 1964 (discharges above 3,500 ft³/s only), October 1964 to current year. Published as "near Deming" 1910-11.

REVISED RECORDS.--WSP 1286: 1951. WSP 1736: 1937(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 204.2 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 5, 1910, nonrecording gage at site 1.1 mi downstream at different datum. Dec. 5, 1910, to Mar. 31, 1911, nonrecording gage at site 5 mi downstream at different datum. July 20 to Sept. 19, 1935, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 17-20, 29-31, Jan. 1-4, 8, 9, 11-14, 29-31, Feb. 1-11. Records poor. Slight regulation by powerplant at Excelsior. Since February 1962, city of Bellingham diverts up to 100 ft³/s from the Middle Fork for municipal use. Summer flows augmented by glacier melt at source.

AVERAGE DISCHARGE.--43 years (water years 1936-57, 1965-85), 3,354 ft³/s, 77.99 in/yr, 2,430,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,200 ft³/s Feb. 10, 1951, gage height, 15.69 ft, from rating curve extended above 25,000 ft³/s; maximum gage height, 15.89 ft Dec. 3, 1975; minimum recorded discharge, 502 ft³/s Nov. 29, 1952, gage height, 3.72 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Peak of Mar. 15, 1908, reportedly reached a stage of 20 ft. Peak of Feb. 27, 1932, reached a stage of 16.8 ft, from floodmarks, discharge, 49,300 ft³/s. Peak of November 1909 reached a stage about equal to that of the 1932 peak.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 3	0800	*16,500	*10.45	No other peak greater than base discharge.			

Minimum discharge, 726 ft³/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	2360	3400	1600	1440	2110	2970	4550	5610	3070	2440	1390
2	1150	6320	2910	1580	1380	1840	4020	5150	5180	3470	2170	1350
3	1160	12700	2600	1580	1300	1690	5540	5910	5040	4120	2060	1320
4	1570	9630	2390	1600	1160	1700	3740	5130	7280	4090	2110	1300
5	1850	7290	2230	1640	1180	1590	3220	4440	6620	3810	1880	2060
6	1360	5650	2110	1620	1200	1540	3040	4250	5390	3260	1760	3620
7	2160	6930	3840	1580	1220	1510	3070	3970	10000	3110	1910	2890
8	2520	4910	9400	1580	1180	1490	3390	3700	9420	3520	1910	1720
9	2900	4170	5320	1560	1100	1460	4100	3420	6390	3850	1740	1250
10	6790	4320	3950	1550	1150	1440	4920	3640	5560	3840	1670	1190
11	6120	6260	3250	1520	1500	1420	6390	3640	5360	3440	1580	1160
12	4260	6520	2940	1480	1820	1410	6990	3140	5610	3240	1650	1140
13	4830	6020	2670	1440	1540	1390	5820	3030	5320	2950	1630	1110
14	4000	4640	4740	1680	1530	1370	5570	3590	5460	2800	1620	1080
15	3030	3760	5050	2150	2280	1360	4980	3500	5740	2810	1690	1060
16	2430	3240	3490	1880	1780	1340	5860	4570	4890	2840	1640	1150
17	2090	2870	2800	2150	1560	1340	5010	6540	4600	2860	1670	1770
18	1840	3360	2500	3240	1530	1340	3990	7310	5520	2890	1670	1220
19	1680	5060	2300	3250	1550	1370	3280	6840	6020	2880	1610	1150
20	1560	4710	2150	3810	1610	1430	2810	6020	5450	2860	1530	1090
21	1450	3560	2000	3100	1610	1510	2480	5400	4630	2780	1510	1020
22	1370	3010	2240	2650	2150	1450	2290	6120	4310	2760	1470	959
23	1320	4380	2850	2380	2210	1680	2560	6900	3690	2730	1440	905
24	1330	4680	2350	2220	3940	2000	2610	7570	3060	2510	1540	852
25	5620	3700	2100	2070	3110	1720	2510	6990	2780	2360	1590	812
26	4280	3180	2030	1940	2400	1550	2640	6040	3140	2230	1550	802
27	3160	3160	1890	1850	2060	1460	11100	5750	3450	2210	1500	791
28	3150	4290	1770	1720	2050	1450	8420	5360	3290	2260	1470	777
29	2710	4450	1740	1600	---	1440	5770	5140	3370	2420	1440	761
30	2630	3980	1680	1520	---	1980	4810	5710	3250	2540	1420	736
31	2340	---	1640	1460	---	2760	---	5000	---	2580	1410	---
TOTAL	83820	149110	92330	61000	48540	49140	133900	158320	155430	93090	52280	38435
MEAN	2704	4970	2978	1968	1734	1585	4463	5107	5181	3003	1686	1281
MAX	6790	12700	9400	3810	3940	2760	11100	7570	10000	4120	2440	3620
MIN	1150	2360	1640	1440	1100	1340	2290	3030	2780	2210	1410	736
CFSM	4.63	8.51	5.10	3.37	2.97	2.71	7.64	8.74	8.87	5.14	2.89	2.19
IN.	5.34	9.50	5.88	3.89	3.09	3.13	8.53	10.08	9.90	5.93	3.33	2.45
AC-FT	166300	295800	183100	121000	96280	97470	265600	314000	308300	184600	103700	76240

CAL YR 1984 TOTAL 1394780 MEAN 3811 MAX 26000 MIN 1150 CFSM 6.53 IN. 88.85 AC-FT 2767000
WTR YR 1985 TOTAL 1115395 MEAN 3056 MAX 12700 MIN 736 CFSM 5.23 IN. 71.05 AC-FT 2212000

12213100 NOOKSACK RIVER AT FERNDALE, WA

LOCATION.--Lat 48°50'42", long 122°35'17", in NE¼NW¼ sec.29, T.39 N., R.2 E., Whatcom County, Hydrologic Unit 17110004, on right bank 300 ft downstream from highway bridge at Ferndale, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--786 mi², of which 48.9 mi² is in Canada.

PERIOD OF RECORD.--October 1966 to current year.

REVISED RECORDS.--WDR WA-83-1: 1971(M), 1976(M).

GAGE.--Water-stage recorder. Datum of gage is 4.61 ft above National Geodetic Vertical Datum of 1929. Prior to July 18, 1968, at site 220 ft upstream at datum 4.21 ft higher.

REMARKS.--Estimated daily discharges: Dec. 30 to Jan. 5. Records good. Slight regulation by powerplant at Excelsior. City of Bellingham diverts up to about 100 ft³/s at times from Middle Fork Nooksack River for municipal use. City of Ferndale diverts unknown quantities for municipal use.

AVERAGE DISCHARGE.--19 years, 3,908 ft³/s, 67.52 in/yr, 2,831,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,700 ft³/s Dec. 3, 1975, gage height, 21.97 ft; minimum, 718 ft³/s Nov. 5, 1974, gage height, 3.03 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 27	2400	*16,300	*13.97	No other peak greater than base discharge.			

Minimum discharge, 766 ft³/s Sept. 30, gage height, 2.74 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	2150	4340	1800	1560	2500	3200	4540	5970	3390	2370	1060
2	1180	4720	3620	1780	1490	2270	3900	4840	5670	3490	2130	1010
3	1220	12000	3120	1780	1370	2080	6360	5610	5290	4310	1930	1000
4	1330	11000	2780	1790	1270	2130	4630	5200	6840	4450	1970	988
5	1840	8100	2540	1820	1320	2160	3760	4630	7760	4370	1840	1230
6	1510	5780	2350	1810	1320	1970	3550	4240	6200	3660	1670	3060
7	1660	7020	2800	1750	1350	1840	3410	4050	8450	3340	1670	3370
8	2260	5590	9680	1760	1290	1750	3540	3750	12500	3620	1740	2120
9	2690	4580	6620	1720	1230	1690	4060	3490	7370	4010	1700	1580
10	4600	4250	4690	1660	1240	1640	4930	3430	6170	4230	1560	1310
11	7490	6420	3890	1590	1510	1590	5470	3720	5830	3790	1470	1200
12	4370	6780	3670	1540	2310	1570	7810	3240	6040	3550	1460	1150
13	4770	6850	3410	1520	1870	1530	6220	3010	6160	3220	1480	1110
14	4440	5290	4580	1580	1630	1530	6040	3340	5750	2960	1430	1090
15	3490	4250	7630	2170	2170	1530	5460	3430	6790	2930	1470	1100
16	2740	3670	4800	2080	2120	1520	5980	3790	5890	2900	1450	1070
17	2320	3260	3680	2040	1770	1590	5810	5710	5270	2920	1440	1810
18	2000	3260	3070	3240	1610	1660	4670	7260	5910	2960	1480	1540
19	1800	5200	2770	3600	1600	1700	3980	7000	6920	2930	1440	1200
20	1660	5100	2630	4380	1940	1700	3500	6270	6580	2920	1340	1060
21	1540	3970	2470	3910	1790	1750	3160	5430	5530	2810	1200	983
22	1440	3340	2600	3210	2270	1690	2880	5930	5210	2770	1130	952
23	1360	3800	3360	2820	2370	1750	2980	6860	4470	2740	1110	908
24	1340	5760	3000	2570	3480	2370	3120	8010	3770	2560	1190	879
25	3800	4290	2610	2370	3980	2150	3230	7590	3290	2380	1310	883
26	4820	3640	2470	2190	2950	1910	3070	6860	3420	2210	1310	883
27	3400	3650	2370	2040	2570	1780	9630	6190	3780	2120	1200	873
28	3100	5300	2170	1920	2380	1690	11600	5920	3680	2130	1130	823
29	2980	5770	1950	1800	---	1640	6520	5370	3700	2230	1110	799
30	2580	5190	1900	1660	---	1930	5090	6330	3670	2370	1070	770
31	2570	---	1850	1610	---	3170	---	5570	---	2440	1120	---
TOTAL	83500	159980	109420	67510	53760	57780	147560	160610	173880	96710	45920	37811
MEAN	2694	5333	3530	2178	1920	1864	4919	5181	5796	3120	1481	1260
MAX	7490	12000	9680	4380	3980	3170	11600	8010	12500	4450	2370	3370
MIN	1180	2150	1850	1520	1230	1520	2880	3010	3290	2120	1070	770
CFSM	3.43	6.78	4.49	2.77	2.44	2.37	6.26	6.59	7.37	3.97	1.88	1.60
IN.	3.95	7.57	5.18	3.20	2.54	2.73	6.98	7.60	8.23	4.58	2.17	1.79
AC-FT	165600	317300	217000	133900	106600	114600	292700	318600	344900	191800	91080	75000

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CAL YR 1984   TOTAL  1515270   MEAN   4140  MAX   35600  MIN  1180  CFSM  5.27   IN.  71.72   AC-FT   3006000
WTR YR 1985   TOTAL  1194441   MEAN   3272  MAX   12500  MIN   770  CFSM  4.16   IN.  56.53   AC-FT   2369000
```

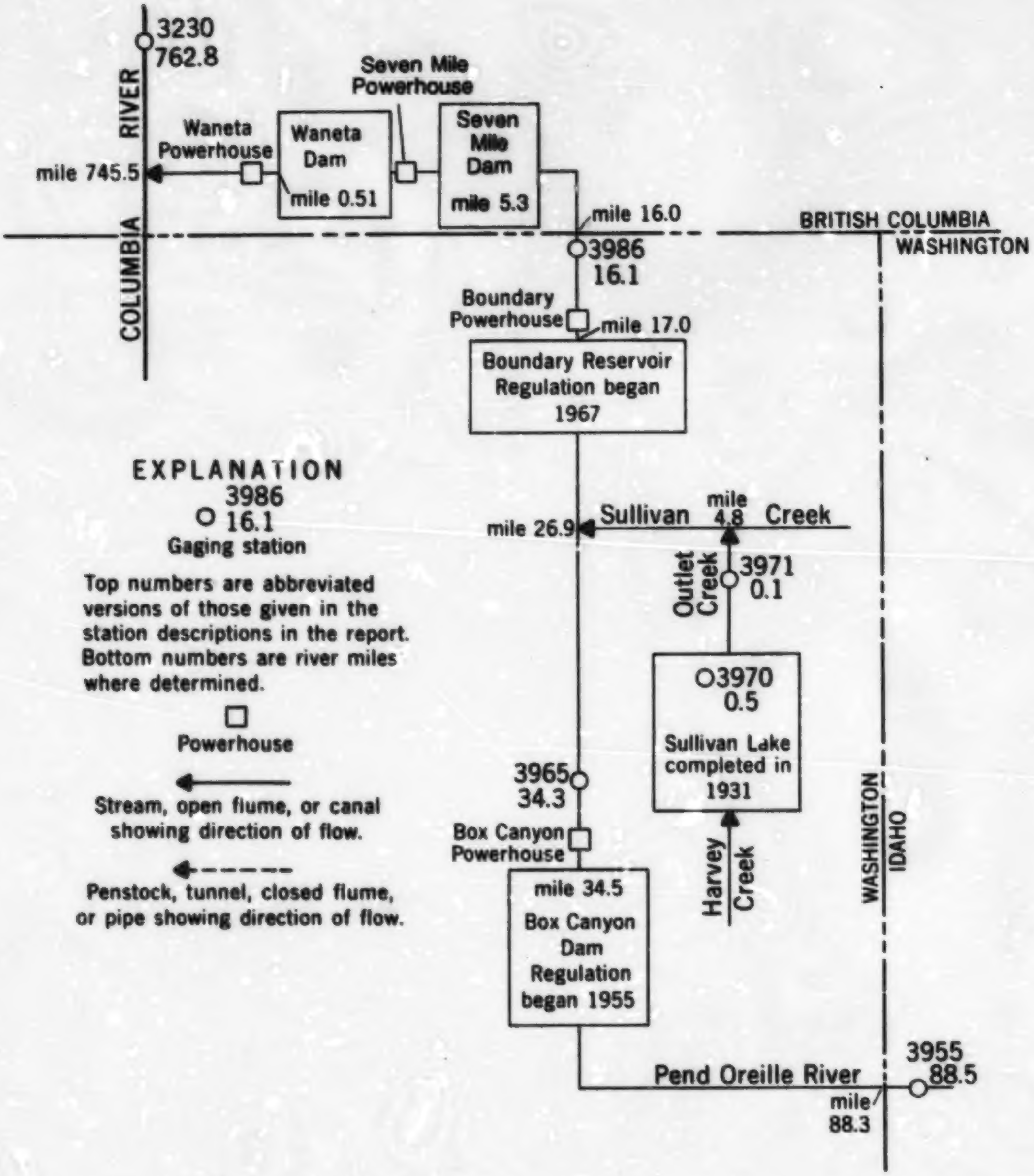
3230
762.8
COLUMBIA RIVER
Seven Mile Powerhouse
Waneta Powerhouse
Waneta Dam
mile 0.51
Seven Mile Dam
mile 5.3
mile 745.5
mile 16.0
BRITISH COLUMBIA
WASHINGTON
3986
16.1
Boundary Powerhouse
mile 17.0
Boundary Reservoir Regulation began 1967
EXPLANATION
3986
16.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
mile 26.9
Sullivan Creek
mile 4.8
Outlet Creek
3971
0.1
3970
0.5
Sullivan Lake completed in 1931
Harvey Creek
WASHINGTON
IDAHO
3965
34.3
Box Canyon Powerhouse
mile 34.5
Box Canyon Dam Regulation began 1955
Pend Oreille River
3955
88.5
mile 88.3

Figure 19.--Gaging stations in Pend Oreille River basin and Columbia River above international boundary.

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12323000 COLUMBIA RIVER AT BIRCHBANK, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°10'40", long 117°42'59", on right bank at Birchbank, British Columbia, 0.7 mi downstream from Sullivan Creek, 7 mi upstream from Trail, 11.7 mi downstream from Kootenay River, 17.4 mi upstream from international boundary, and at mile 762.4.

DRAINAGE AREA.--34,000 mi², approximately.

PERIOD OF RECORD.--April 1913 to current year. Published as "at Trail, British Columbia" 1913-37.

REVISED RECORDS.--WSP 982: 1942. WSP 1216: 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,329.90 ft above National Geodetic Vertical Datum of 1929, 1947 international joint adjustment, published as 1,338.00 ft prior to October 1948. Prior to Oct. 1, 1937, nonrecording gage on highway bridge at site 6.8 mi downstream at datum 16.27 ft lower.

REMARKS.--Records excellent. Flow regulated by six major reservoirs, and by numerous small reservoirs and powerplants. Diversions upstream from station for irrigation of about 25,000 acres.

COOPERATION.--This station is maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--72 years, 71,000 ft³/s, 51,440,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 377,000 ft³/s June 9, 1961, gage height, 50.05 ft; maximum gage height, 50.62 ft June 11, 1948; minimum discharge observed, 8,940 ft³/s Feb. 3, 1937, gage height, 6.27 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 125,000 ft³/s Feb. 4, gage height, 24.73 ft; minimum daily, 17,300 ft³/s Nov. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44800	68900	61800	85800	116000	63900	37800	36000	67400	61100	55400	48000
2	52300	64600	72400	89300	108000	61400	39500	35000	67800	76300	51900	45200
3	51600	46300	77000	88300	107000	59700	41300	39900	68100	85500	56900	45200
4	55400	27400	85800	80200	115000	63600	41000	40600	72400	86900	68500	47700
5	54700	18700	86900	83300	113000	63200	41300	38500	72400	80900	74200	52300
6	54700	17300	87200	94300	109000	59700	36400	44100	72000	85100	76600	55400
7	49400	18000	90000	105000	115000	59000	24800	55400	72700	91100	77000	50800
8	39200	21300	83300	114000	123000	51200	18800	57900	82600	92200	73800	46600
9	37800	29700	81600	112000	97800	38800	17800	54700	89700	89700	74200	46600
10	39900	41700	84400	112000	85800	32000	18900	54400	90400	84400	68500	45200
11	41300	38100	84400	113000	89000	36700	22800	60000	89300	85500	57200	43400
12	36400	41700	83700	114000	95300	40600	32100	52300	88600	83700	51900	43400
13	28400	62100	82300	117000	93900	40300	33100	51200	87600	77700	58600	45600
14	26200	68100	83000	117000	92900	42400	37100	54700	86500	72700	66000	42000
15	28200	62900	77700	117000	93900	44800	45200	59300	73100	74500	66700	35700
16	32100	51600	71300	118000	89700	46600	50800	67800	61800	79100	69600	38800
17	46600	43800	72000	122000	89000	47700	55100	72000	57600	81600	66700	43100
18	62100	22300	71700	122000	92900	51600	52300	68500	56900	80200	62500	38800
19	71700	35200	73100	121000	91100	55100	53000	63900	56500	79100	59000	29600
20	76600	31200	74900	119000	87900	59000	46600	66000	55800	72400	52600	26200
21	73400	30900	74500	119000	84400	62100	38100	66000	54000	62100	51600	26100
22	53300	43100	77300	119000	77300	60000	38500	64600	56500	62900	50100	26100
23	51200	47000	80200	121000	68100	55800	45200	63200	65000	67800	42400	33100
24	52600	41300	80900	121000	66700	51900	47300	65000	66000	65700	39500	43100
25	50500	37400	77000	120000	69600	54400	46600	66000	66700	63900	39200	45600
26	47000	40600	73800	113000	70600	54700	45200	62900	71300	57200	42700	45900
27	40600	49100	76300	107000	69200	53700	38100	61800	76600	55100	44500	47700
28	32500	51200	79800	106000	66000	56900	32900	62900	73800	55800	46300	38800
29	31800	54000	82300	105000	---	58600	34200	63200	61100	59000	47300	29300
30	44500	55400	85500	114000	---	52300	34700	63200	61100	61800	43800	33100
31	63200	---	84400	117000	---	41300	---	67400	---	55100	45900	---
TOTAL	1470000	1260900	2456500	3406200	2577100	1619000	1146500	1778400	2121300	2286100	1781100	1238400
MEAN	47420	42030	79240	109900	92040	52230	38220	57370	70710	73750	57450	41280
MAX	76600	68900	90000	122000	123000	63900	55100	72000	90400	92200	77000	55400
MIN	26200	17300	61800	80200	66000	32000	17800	35000	54000	55100	39200	26100
AC-FT	2916000	2501000	4872000	6756000	5112000	3211000	2274000	3527000	4208000	4534000	3533000	2456000

CAL YR 1984 TOTAL 23187100 MEAN 63350 MAX 122000 MIN 17300 AC-FT 45992000
WTR YR 1985 TOTAL 23141500 MEAN 63400 MAX 123000 MIN 17300 AC-FT 45901000

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12395500 PEND OREILLE RIVER AT NEWPORT, WA

LOCATION.--Lat 48°10'56", long 117°02'00", in SE¼SE¼SW¼ sec.24, T.56 N., R.6 W. (Boise meridian), Bonner County, ID, Hydrologic Unit 17010216, on left bank at Newport, 0.2 mi upstream from bridge on U.S. Highway 2, 0.2 mi east of Idaho-Washington state line, 1.6 mi downstream from Albeni Falls Dam, and at mile 88.5.

DRAINAGE AREA.--24,200 mi^2, approximately.

PERIOD OF RECORD.--June 1903 to September 1941, October 1952 to current year. Prior to October 1921, published as "Clark Fork at Newport, WA.," October 1921 to September 1937, as "Clark Fork at Priest River, ID.," and October 1937 to September 1941, as "Pend Oreille River at Priest River, ID."

REVISED RECORDS.--WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1928, nonrecording gages at Priest River, Newport or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 2,040.14 ft above National Geodetic Vertical Datum, and Oct. 1, 1935, to Sept. 30, 1941, at datum 2,000 ft above National Geodetic Vertical Datum, water-stage recorder at Priest River. Since December 1952, auxiliary water-stage recorder 2.74 mi downstream from base gage.

REMARKS.--Estimated daily discharges: Feb. 4-10, Mar. 9-19. Records good. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions upstream from station for irrigation of about 354,000 acres.

AVERAGE DISCHARGE.--71 years (1904-41, 1953-85), 25,900 ft^3/s, 18,760,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft^3/s June 15, 1913, June 21, 1933, June 12, 1972; minimum, 1,280 ft^3/s Sept. 1, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of about 64.0 ft present site and datum, discharge, about 200,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65,000 ft^3/s June 11, maximum gage height, 42.82 ft June 13; minimum discharge, 5,830 ft^3/s Aug. 9, minimum gage height, 31.58 ft Dec. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18900	25500	11300	14200	12400	14300	13300	29800	50600	18800	14700	15700
2	18900	24500	8600	13900	14400	13000	12100	32000	50800	17600	15700	15600
3	21000	22800	12800	16000	16100	15400	12400	33600	50700	17900	15600	17300
4	23300	21000	15600	16100	14800	15400	12600	36500	48800	21100	15700	18900
5	22400	22100	13900	16100	13500	15400	13200	40000	46200	20000	12600	18900
6	19200	24500	12700	16200	14200	15300	14700	41000	42100	18900	9510	18800
7	19000	23700	12500	16200	15000	15300	15000	40600	40700	18500	11100	18800
8	19000	23000	12600	16500	15100	15700	15300	40600	50300	17800	11900	18700
9	21600	23000	12500	16000	12800	16200	16500	42900	56100	17000	9400	18800
10	25800	23200	13300	15900	12000	17500	17400	42700	58100	17000	7810	18800
11	25800	22900	14400	17400	10100	18900	17500	40200	62000	19900	16800	18700
12	25200	22700	15700	18600	7660	20200	19900	39900	63500	17500	10900	20500
13	24700	22200	16900	18100	10900	21300	22500	43100	59200	12500	9650	23600
14	24800	22300	17700	18000	15900	21000	24600	42400	54000	12500	9760	22100
15	25300	22900	20500	18300	15800	20400	27300	38200	51400	11500	10600	22000
16	27100	22500	19200	16900	14700	21000	30800	33000	51000	10700	19900	22100
17	27600	23300	17300	15900	13700	19400	31100	28700	46000	12700	21000	22000
18	28200	22700	15900	15100	13800	18300	30400	25100	41000	12800	21300	21900
19	28000	22400	16600	16600	14200	17400	32100	25500	40500	12400	13200	23300
20	28000	21700	15700	17000	14100	15400	35400	27700	35200	12700	11900	26000
21	28300	18800	13300	15000	14100	15000	35900	31900	28400	13000	12100	25900
22	28500	16700	13400	10800	14600	14100	36200	37200	25600	12800	12800	25800
23	28400	16700	13900	8190	10200	12700	33300	40400	25600	12700	16000	25700
24	27500	17100	16300	11400	10400	13000	30700	40500	25600	12700	15900	26100
25	27100	20100	17200	15000	10400	14300	29100	41700	24600	12700	17500	25900
26	27100	20600	15200	15300	10400	14900	26100	44300	23500	12800	19200	25900
27	27300	18600	16600	15000	10600	15200	24200	44500	23500	12800	19200	23600
28	27500	16500	20000	15000	12100	15100	18500	44000	22300	12600	19200	21800
29	27200	16400	15500	15100	---	13700	16800	46800	20700	12600	17400	21900
30	27400	13900	16400	15100	---	12600	22800	56000	20400	12600	15800	22000
31	28300	---	16700	13700	---	14400	---	58400	---	13000	15900	---
TOTAL	778400	634300	470200	478590	363960	501800	687700	1209200	1238400	460100	450030	647100
MEAN	25110	21140	15170	15440	13000	16190	22920	39010	41280	14840	14520	21570
MAX	28500	25500	20500	18600	16100	21300	36200	58400	63500	21100	21300	26100
MIN	18900	13900	8600	8190	7660	12600	12100	25100	20400	10700	7810	15600
AC-FT	1544000	1258000	932600	949300	721900	995300	1364000	2398000	2456000	912600	892600	1284000

CAL YR 1984 TOTAL 8643700 MEAN 23620 MAX 68200 MIN 3220 AC-FT 17145000
WTR YR 1985 TOTAL 7919780 MEAN 21700 MAX 63500 MIN 7660 AC-FT 15709000

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 48°46'52", long 117°24'55", in SE¼NE¼ sec.19 T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft downstream from Box Canyon Dam, 2.8 mi north of Ione, and at mile 34.3.

DRAINAGE AREA.--24,900 mi², approximately.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-81-2: 1976.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft upstream at same datum. Mar. 29 to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi downstream at same datum.

REMARKS.--No estimated daily discharges. Records good except those less than 10,000 ft³/s, which are fair. Discharge for Dec. 21-29, Jan. 1 to Feb. 4, provided by Public Utility District No. 1 of Pend Oreille County through the Corps of Engineer's North Pacific Division Reservoir Control Center. Flow completely regulated by Box Canyon Reservoir, 1,000 ft upstream, since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smaller reservoirs and powerplants. Numerous diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--33 years, 27,790 ft³/s, 20,134,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s June 13, 14, 1972; maximum elevation, 2,014.54 ft June 14, 1972; minimum observed discharge, 125 ft³/s Apr. 23, 1967 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached an elevation of 2,018.00 ft, from floodmarks, discharge, 167,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 62,300 ft³/s June 13; maximum elevation, 2,000.63 ft June 12; minimum daily, 6,360 ft³/s Aug. 10; minimum elevation, 1,984.90 ft Apr. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19800	27800	13400	15800	13400	12300	15000	28400	51700	18800	12600	14700
2	19900	26900	10200	14600	13200	14800	13600	28900	50600	17600	14900	15200
3	19500	22900	9540	15200	16100	15300	13500	32500	49500	18400	15100	15400
4	22700	24800	12200	16100	16200	15800	13900	35300	49100	19300	14600	16800
5	23300	19700	14800	16700	14700	16300	14000	38500	47400	21200	14100	18200
6	20700	21700	13200	16900	14800	14500	15700	41400	45100	19300	10200	18300
7	19400	26200	12400	17000	14400	14900	16500	41500	40100	18800	9060	18300
8	19000	24600	12400	17300	15200	15400	16000	41600	45300	18000	10500	18400
9	19500	23700	12500	17000	14900	15300	16900	42000	52000	17200	9900	18400
10	23300	24100	13400	16600	12600	16100	18400	44400	54300	17100	6360	18400
11	26000	24000	13800	17400	11800	18700	19000	42100	57900	17600	11100	18500
12	25400	23700	14300	18900	8670	18300	19600	41400	61200	19100	13700	18500
13	25800	23500	16700	19200	7970	21900	23000	42100	60200	14600	10400	21900
14	25000	23100	17800	19100	13800	22300	24700	43400	58000	13300	9590	22600
15	25500	23300	19400	19000	16500	21400	27300	39700	53900	12000	8450	22100
16	25600	23400	20900	18700	16200	21400	31500	37800	51800	10900	14600	22100
17	26800	23300	18900	17600	14800	21400	32700	33800	50100	10100	19500	21600
18	28000	23700	17600	16900	14600	19400	32700	29100	43200	12400	20100	21600
19	28100	23400	16200	16600	14900	19000	32400	28300	41400	12200	17900	21500
20	28200	22900	17100	18600	14900	17600	35200	28300	39100	11800	12200	24000
21	28100	21400	15300	17100	14600	16100	36900	29600	33700	11900	11300	24800
22	28300	18800	13700	14400	14200	15800	37000	34100	28100	11800	11400	25300
23	29300	17700	13900	11200	12400	14300	36300	38600	26700	11900	13700	24700
24	28700	17300	14900	9600	9480	13500	32800	39800	26000	12500	14700	25700
25	28000	18000	17700	13800	9620	13500	32400	40600	25600	12300	15400	25700
26	27400	20700	17600	16100	9440	15200	28500	42000	24200	12200	17900	25400
27	27400	20900	16400	16200	9600	16200	27800	43700	23500	11800	18600	24900
28	27800	18600	19000	15800	10100	16200	25600	44600	23500	11900	19300	22500
29	27400	17100	18900	16000	---	15500	20100	45300	21900	11400	18300	21600
30	27400	16300	17200	15800	---	13500	23300	51500	21500	12000	16000	21700
31	27500	---	17600	15500	---	13600	---	55800	---	11800	15200	---
TOTAL	778800	663500	478940	506700	369080	515500	732300	1206100	1256600	451200	426660	628800
MEAN	25120	22120	15450	16350	13180	16630	24410	38910	41890	14550	13760	20960
MAX	29300	27800	20900	19200	16500	22300	37000	55800	61200	21200	20100	25700
MIN	19000	16300	9540	9600	7970	12300	13500	28300	21500	10100	6360	14700
AC-FT	1545000	1316000	950000	1005000	732100	1022000	1453000	2392000	2492000	895000	846300	1247000

CAL YR 1984 TOTAL 8963840 MEAN 24490 MAX 70600 MIN 4840 AC-FT 17780000
WTR YR 1985 TOTAL 8014180 MEAN 21960 MAX 61200 MIN 6360 AC-FT 15896000

12397000 SULLIVAN LAKE NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'21", long 117°17'19", in SW¼NE¼ sec.31, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, 200 ft south of dam at outlet, and 4.0 mi southeast of Metaline Falls.

DRAINAGE AREA.--51.2 mi².

PERIOD OF RECORD.--May 1912 to September 1923, January 1959 to current year (fragmentary).

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pend Oreille County Public Utility District). Prior to Sept. 30, 1923, nonrecording gage on dam at outlet of lake at different datum.

REMARKS.--Lake elevation is controlled by concrete dam. Top of gates is at 2,588.7 ft, bottom of gates is at 2,584.7 ft. Bottom of sluiceway is at 2,564 ft. Some small diversions for domestic use.

COOPERATION.--Elevation record furnished by Public Utility District No. 1 of Pend Oreille County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 2,589.94 ft July 15, 1975; minimum observed, 2,564.00 ft on many days during period Jan. 6 to Mar. 25, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,587.98 ft Oct. 2; minimum observed, 2,564.40 ft Mar. 19.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2579.52	2566.04	---	---	---	---	2566.96	2580.14	2585.36	2585.10	---
2	2587.98	2579.00	2565.90	---	---	---	2564.48	2567.12	2580.56	---	---	2584.66
3	2587.94	2578.70	2565.74	---	---	---	---	2567.40	2580.84	2585.40	2585.10	---
4	---	2578.10	2565.60	---	2564.44	2564.42	---	2567.78	---	---	---	---
5	---	2577.54	2565.51	---	2564.45	---	2564.50	---	2581.45	---	---	---
6	2587.44	2577.02	---	---	---	---	---	2568.32	2581.74	2585.44	2585.06	2584.60
7	2587.30	2576.50	---	2564.62	---	---	---	2568.56	2582.04	---	---	---
8	2586.98	2575.98	---	---	---	2564.44	2564.52	2568.84	2582.58	---	---	---
9	2586.70	2575.44	---	---	---	---	---	2569.16	2582.92	---	2585.00	2584.52
10	2586.40	2574.94	2565.20	---	---	---	---	2569.44	2583.22	---	---	---
11	2586.20	2574.46	2565.20	---	2564.48	2564.42	2564.66	2569.68	2583.46	2585.44	---	---
12	2586.00	2573.94	---	---	---	---	---	2569.88	2583.70	---	2885.02	---
13	2585.80	2573.50	---	---	---	---	2564.74	2570.06	2583.90	2585.40	---	2584.52
14	2585.60	2573.00	2565.10	---	---	---	---	2570.30	2584.30	---	---	---
15	2585.46	2572.50	---	---	2564.48	2564.42	2564.94	2570.50	2584.40	2585.38	2584.96	---
16	---	2571.96	---	---	---	---	---	2570.90	2584.48	---	---	---
17	---	2571.42	2564.94	---	---	---	2565.24	2571.34	2584.58	2585.36	---	---
18	2584.80	2570.88	---	---	---	---	---	---	2584.68	---	---	---
19	---	2570.32	---	---	2564.46	2564.40	---	2572.56	2584.88	2585.32	2584.88	---
20	2584.08	2569.82	---	---	---	---	---	2573.34	2584.94	---	---	---
21	2583.76	2569.30	2564.84	2564.58	---	---	---	2574.00	2585.00	---	---	2584.56
22	2583.50	2568.80	---	---	---	2564.44	2566.02	2574.66	2585.10	2585.30	2584.86	---
23	2583.18	2568.28	---	---	---	---	2566.14	2575.50	2585.10	---	---	2584.53
24	2582.88	2567.84	---	---	---	---	2566.24	2576.28	2585.12	2585.26	---	---
25	2582.58	2567.46	---	---	2564.46	2564.46	2566.34	2576.96	---	---	---	---
26	2582.26	2567.10	2564.76	---	---	---	2566.36	2577.66	2585.22	2585.20	2584.78	---
27	---	2566.78	---	2564.56	---	2564.48	2566.52	2578.10	---	---	---	2584.50
28	---	2566.56	---	---	---	2564.46	2566.58	2578.68	2585.28	---	---	---
29	2581.02	2566.38	---	---	---	---	2566.68	---	---	2585.16	---	---
30	2580.60	2566.20	---	2564.58	---	---	2566.78	2579.52	2585.32	2585.14	2584.72	2584.44
31	2580.06	---	2564.72	---	---	---	---	2579.84	---	---	---	---
MAX	---	2579.52	---	---	---	---	---	---	---	---	---	---
MIN	---	2566.20	---	---	---	---	---	---	---	---	---	---

12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'42", long 117°17'12", in SW¼SE¼ sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi upstream from mouth, 0.4 mi downstream from Sullivan Lake Dam, and 4 mi east of Metaline Falls.

DRAINAGE AREA.--51.5 mi².

PERIOD OF RECORD.--January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 20, 21, Mar. 15-27. Records good except those for estimated daily discharges, which are fair. Flow completely regulated by Sullivan Lake 0.4 mi upstream (see sta 12397000). No diversions.

AVERAGE DISCHARGE.--26 years, 76.1 ft³/s, 55,130 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft³/s May 31, 1969, gage height, 12.26 ft; minimum, 1.6 ft³/s part of each day Apr. 9-12, 1973; minimum gage height, 8.76 ft part of each day Apr. 9-12, 1973, and Mar. 4-10, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 432 ft³/s Nov. 16, gage height, 11.03 ft; minimum, 2.2 ft³/s part or all of each day Apr. 19 to May 3, gage height, 8.84 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	402	113	27	18	15	18	2.2	8.4	16	18	18
2	18	394	101	26	18	15	18	2.2	8.9	17	18	18
3	45	384	93	26	18	15	18	2.2	9.1	16	18	18
4	110	377	89	26	18	15	18	2.6	9.7	16	18	18
5	163	368	76	25	17	15	18	2.6	9.7	16	18	18
6	173	384	68	25	16	15	18	2.6	9.9	16	18	17
7	162	394	65	24	16	15	18	2.6	11	16	18	17
8	175	384	63	24	17	15	18	2.6	11	16	19	17
9	194	396	59	23	17	15	18	2.6	11	17	19	17
10	184	399	56	23	16	15	19	2.8	12	17	19	17
11	169	386	53	22	16	14	21	2.8	12	17	19	16
12	162	375	51	22	17	14	24	2.9	12	17	18	16
13	158	396	49	22	17	14	27	3.0	13	17	18	16
14	127	407	48	22	17	14	32	3.2	13	17	18	16
15	106	390	46	22	16	14	38	3.2	13	17	18	16
16	173	404	45	22	16	14	47	3.3	13	17	18	16
17	199	405	43	22	16	14	96	3.5	13	18	18	16
18	218	383	42	21	15	14	27	3.7	13	18	18	16
19	234	392	42	20	15	14	2.3	3.8	13	18	18	16
20	232	389	42	20	16	14	2.2	4.0	15	18	18	16
21	229	380	40	20	16	14	2.2	4.3	15	17	18	16
22	226	360	39	20	16	14	2.2	4.5	15	17	17	16
23	234	330	38	19	16	15	2.2	4.8	16	17	17	16
24	245	299	35	19	16	15	2.2	5.4	16	17	17	16
25	243	257	35	19	16	16	2.2	6.2	17	17	17	16
26	285	220	31	19	16	16	2.2	6.3	16	17	17	16
27	312	189	30	19	16	16	2.2	6.7	16	17	18	16
28	307	166	28	19	15	16	2.2	7.4	16	17	18	16
29	318	147	28	19	---	16	2.2	7.4	16	17	18	16
30	364	129	28	18	---	16	2.2	7.4	16	17	18	16
31	412	---	27	18	---	17	---	7.9	---	17	18	---
TOTAL	6195	10286	1605	673	459	461	479.5	126.7	389.7	524	557	495
MEAN	200	343	51.8	21.7	16.4	14.9	16.0	4.09	13.0	16.9	18.0	16.5
MAX	412	407	113	27	18	17	96	7.9	17	18	19	18
MIN	18	129	27	18	15	14	2.2	2.2	8.4	16	17	16
AC-FT	12290	20400	3180	1330	910	914	951	251	773	1040	1100	982

CAL YR 1984 TOTAL 42226.2 MEAN 115 MAX 916 MIN 3.0 AC-FT 83760
WTR YR 1985 TOTAL 22250.9 MEAN 61.0 MAX 412 MIN 2.2 AC-FT 44130

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY
(international gaging station)

LOCATION.--Lat 48°59'56", long 117°21'09", in SW¼NE¼ sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi upstream from international boundary, 0.9 mi downstream from Boundary Dam, 6.0 mi downstream from Slate Creek, 9.7 mi north of Metaline Falls, and at mile 16.1.

DRAINAGE AREA.--25,200 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), October 1912 to current year. Prior to October 1928, published as "Clark Fork at Metaline Falls," October 1928 to September 1937 as "Clark Fork below Z Canyon, near Metaline Falls," and October 1938 to September 1964 as "below Z Canyon, near Metaline Falls." Concurrent records published for present site December 1962 to September 1964.

REVISED RECORDS.--WSP 442: 1913. WSP 1716: 1919.

GAGE.--Water-stage recorder. Datum of gage is 1,700 ft city of Seattle Boundary Dam datum. Prior to Dec. 20, 1928, nonrecording gage at Metaline Falls at datum approximately 1,983.4 ft above National Geodetic Vertical Datum of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi upstream at datum 1,721.18 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Water-discharge records excellent except for estimated daily discharges, which are good. Flow regulated by Boundary Reservoir 0.9 mi upstream beginning April 1967, Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952, Flathead Lake beginning April 1938, Hungry Horse Reservoir beginning September 1951, and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres upstream from the station and there probably has not been any appreciable change since that time.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--73 years, 27,270 ft³/s, 19,760,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft³/s June 13, 1948, gage height, 60.25 ft, site and datum then in use; minimum daily, 200 ft³/s Aug. 12, 1967, result of regulation; minimum observed, 109 ft³/s Apr. 23, 1967, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft, from floodmarks, at site and datum 1.3 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 68,500 ft³/s June 12, gage height, 32.28 ft; minimum daily discharge, 6,280 ft³/s Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20300	29100	12300	16700	13300	e14700	15400	32800	56400	22000	12600	15200
2	18700	27800	10600	14500	13700	e13400	16900	31700	55900	18500	15900	15700
3	18700	24400	11500	15900	15600	17500	16800	33500	54200	17900	14300	15700
4	20800	24300	13100	18300	15300	16700	14600	34300	54900	21600	16600	18000
5	22700	22700	16700	17500	14800	16800	15000	38500	51600	20000	14800	18700
6	20900	23300	13100	16000	14200	16200	13300	45200	48900	22200	10600	19100
7	20400	26300	13300	17600	16200	14500	12000	44900	43300	21300	10500	20300
8	20100	27900	13500	17500	16200	16000	14900	44900	48400	18000	10700	18200
9	22100	25800	12500	17400	15300	15900	19800	45600	57100	17200	11700	19300
10	24800	26000	16200	16900	13700	17100	19400	49100	59000	18000	6280	19200
11	26700	23800	13600	17500	12600	19200	21300	45900	62700	18300	e13400	19000
12	25800	24600	14500	19900	9700	20000	19500	43800	66600	17700	e15300	19200
13	27200	25400	17000	18000	11700	21600	24400	44800	65900	16200	11400	23400
14	26200	25100	19700	20000	13500	24300	25100	47200	61500	14500	8300	22800
15	26100	23600	19900	19300	15900	22500	27200	42900	56700	14300	10800	22400
16	27300	24000	19600	19500	17300	20800	33200	41200	55700	11900	15900	23100
17	27600	23500	21000	16800	15600	22900	34500	36800	54500	e10600	19000	19000
18	28200	24600	17500	17900	13400	21400	35200	32800	44600	e12800	19800	22000
19	29400	25100	16000	18200	16800	19800	35200	32000	46600	e13000	18900	23500
20	30000	23900	19300	18000	14200	17300	38400	34000	40500	13400	14100	26400
21	29800	22000	15500	16200	15600	18400	39500	34200	33600	12000	12700	25700
22	29600	20200	14300	15800	13600	16300	39900	33700	31100	13800	12600	26600
23	29700	18700	15000	12500	13900	13900	39500	40400	31000	13100	14200	25900
24	31600	17100	14800	e9360	11500	9480	34900	45600	27400	13100	15300	27200
25	31700	18300	17500	13500	10600	15300	33500	44600	24000	12900	15600	27400
26	30200	22100	17500	15700	10500	16800	33700	46200	25800	12900	17600	26700
27	28600	22000	16800	15300	11000	16900	32600	47000	24600	13500	19500	25100
28	27400	18700	21300	16000	11800	15600	25000	48300	25200	10300	19700	23500
29	29200	18900	18700	16300	---	17200	23600	48600	22600	14400	19900	23200
30	29700	17100	15400	16500	---	14600	21700	55700	20400	13600	16500	23100
31	31300	---	17800	16500	---	12100	---	61400	---	13600	15700	---
TOTAL	812800	696300	495500	517060	387500	535180	776000	1307600	1350700	482600	450180	654600
MEAN	26220	23210	15980	16680	13840	17260	25870	42180	45020	15570	14520	21820
MAX	31700	29100	21300	20600	17300	24300	39900	61400	66600	22200	19900	27400
MIN	18700	17100	10600	9360	9700	9480	12000	31700	20400	10300	6280	15200
AC-FT	1612000	1381000	982800	1026000	768600	1062000	1539000	2594000	2679000	957200	892900	1298000

CAL YR 1984 TOTAL 9498430 MEAN 25950 MAX 75000 MIN 5040 AC-FT 18840000
WTR YR 1985 TOTAL 8466020 MEAN 23190 MAX 66600 MIN 6280 AC-FT 16792000

e Estimated.

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued
(National stream quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1974 to September 1981.
WATER TEMPERATURE: April 1974 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT 24...	1100	25500	169	8.40	9.0	1.6	10.9	101	<1	<1	86

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 24...	2	24	6.2	3.1	7	0.2	0.9	84	7.7	1.1	<0.1

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
OCT 24...	6.6	102	100	0.14	7020	<0.10	<0.01	<0.2	0.01	<0.01	<0.01

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT 24...	<10	<1	68	<0.5	1	<1	<3	2	5	5	6

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT 24...	3	<0.1	<10	<1	<1	<1	58	<6	9	2	138

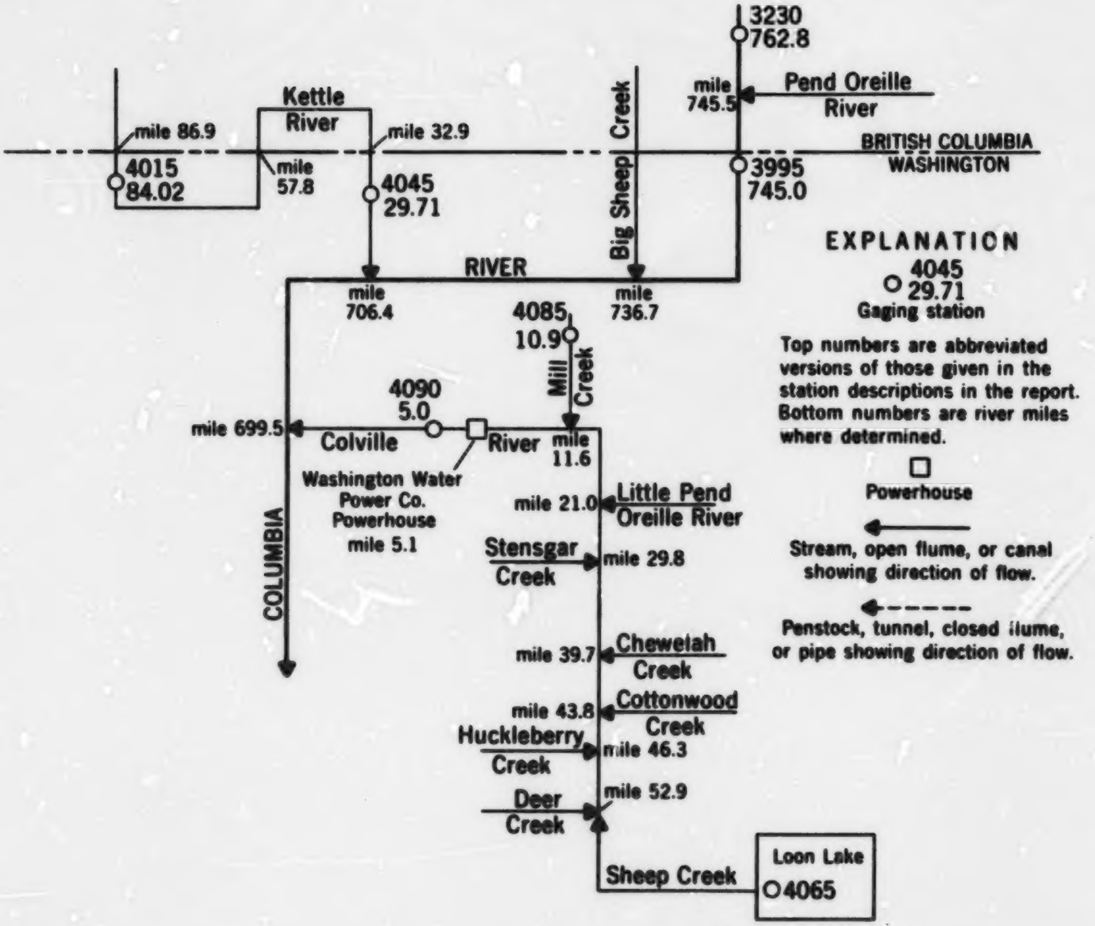
3230
762.8
mile 745.5
Pend Oreille River
Kettle River
mile 86.9
mile 32.9
Big Sheep Creek
BRITISH COLUMBIA
WASHINGTON
4015
84.02
mile 57.8
4045
29.71
3995
745.0
RIVER
mile 706.4
mile 736.7
4085
10.9
Mill Creek
4090
5.0
mile 699.5
Colville
River
mile 11.6
Washington Water Power Co. Powerhouse mile 5.1
COLUMBIA
Little Pend Oreille River
mile 21.0
Stensgar Creek
mile 29.8
Chewelah Creek
mile 39.7
Cottonwood Creek
mile 43.8
Huckleberry Creek
mile 46.3
Deer Creek
mile 52.9
Sheep Creek
Loon Lake
4065
EXPLANATION
4045
29.71
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 20.--Gaging stations in Columbia River basin from international boundary to Colville River.

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12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 49°00'03", long 117°37'42", in NE¼SE¼ sec.4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 0.5 mi downstream from Pend Oreille River, and at mile 745.0.

DRAINAGE AREA.--59,700 mi², approximately.

PERIOD OF RECORD.--October 1937 to current year. Prior to March 1938, monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), 1938(M), 1939(m).

GAGE.--Water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi downstream from base gage at same datum.

REMARKS.--Records good. Flow regulated by eight major reservoirs and numerous smaller reservoirs and powerplants. It was estimated that 346,700 acres were under irrigation in the United States in 1946 with diversions for irrigation of an additional 35,000 acres in Canada.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--48 years, 100,100 ft³/s, 72,520,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft³/s June 12, 1948, elevation, 1,338.13 ft; minimum, 18,000 ft³/s Feb. 7, 1954, elevation, 1,289.38 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,346 ft, from information by Bureau of Reclamation, discharge, 680,000 ft³/s.

A discharge of about 12,900 ft³/s occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft, from rating curve extended below 1,291.6 ft and may have been as low sometime in January 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 159,000 ft³/s June 13, elevation, 1,309.71 ft; minimum daily discharge, 34,000 ft³/s Apr. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65200	100000	77400	102000	128000	80700	52600	64800	126000	78300	72400	65000
2	73500	95200	79600	107000	121000	74700	57100	71100	124000	82600	65300	64800
3	69600	76600	90200	105000	123000	76500	56900	67600	123000	107000	70900	61800
4	74600	53900	98300	100000	127000	80700	56900	79000	127000	106000	87900	64300
5	77900	41300	102000	103000	127000	80200	56700	78600	126000	106000	84100	71900
6	77100	39400	104000	111000	122000	78400	52500	85100	122000	103000	91500	75300
7	74300	41100	104000	121000	130000	73200	37500	102000	118000	114000	90500	72700
8	59400	47500	100000	132000	138000	68500	e34000	105000	134000	114000	85600	65400
9	59700	51900	93600	129000	117000	56600	38500	104000	147000	108000	81000	66100
10	62900	69500	99000	130000	98400	49300	38900	102000	149000	105000	77700	66200
11	67100	60800	102000	129000	99500	53900	45600	110000	151000	104000	71400	64700
12	63300	62700	94500	131000	106000	59700	53400	99500	155000	103000	74200	61900
13	54800	87700	100000	136000	105000	60000	59600	96600	134000	97000	67700	68200
14	53400	95200	103000	136000	107000	65000	64800	103000	148000	91200	74700	67500
15	52700	89900	101000	137000	110000	68600	77000	104000	135000	84400	79100	57000
16	58000	77500	97600	136000	109000	69300	86200	110000	117000	86600	83900	60000
17	72200	69400	94300	141000	105000	69500	93600	113000	112000	90100	89100	62600
18	89100	50400	89500	139000	105000	73900	91800	106000	105000	95900	84600	62000
19	101000	54500	88400	137000	110000	74300	92500	104000	103000	90400	83400	54700
20	107000	56800	89000	140000	101000	78000	88200	106000	99500	90000	68500	53200
21	107000	54000	91000	135000	100000	81200	77000	107000	90700	74000	66100	50800
22	88000	62900	90000	135000	91900	80100	76100	106000	88000	72900	67200	51500
23	78500	66400	92600	134000	85400	69000	81300	109000	94300	78400	58800	55500
24	84900	59500	95800	128000	78700	61900	84500	117000	101000	77300	57700	69000
25	82700	55900	99500	132000	80500	70200	84200	116000	91500	76900	58600	73900
26	79700	60300	91300	126000	81700	72300	79000	115000	91200	67000	61400	74100
27	69600	70200	96700	122000	82300	69200	74000	110000	103000	64900	66000	78900
28	61100	71100	97800	122000	76800	77500	59600	114000	106000	65100	66400	65400
29	60500	73900	105000	120000	---	74900	60200	113000	88400	65000	70400	53800
30	71000	72100	102000	127000	---	67300	55400	118000	78100	74900	66000	57300
31	92600	---	102000	132000	---	54200	---	130000	---	70400	62500	---
TOTAL	2288400	1967600	2971100	3915000	2966200	2168800	1965600	3166300	3507700	2743300	2284600	1915500
MEAN	73820	65590	95840	126300	105900	69960	65520	102100	116900	88490	73700	63850
MAX	107000	100000	105000	141000	138000	81200	93600	130000	155000	114000	91500	78900
MIN	52700	39400	77400	100000	76800	49300	34000	64800	78100	64900	57700	50800
AC-FT	4539000	3903000	5893000	7765000	5883000	4302000	3899000	6280000	6958000	5441000	4532000	3799000

CAL YR 1984 TOTAL 33201900 MEAN 90720 MAX 152000 MIN 38200 AC-FT 65856000
WTR YR 1985 TOTAL 31860100 MEAN 87290 MAX 155000 MIN 34000 AC-FT 63195000

e Estimated.

12400520 COLUMBIA RIVER AT NORTHPORT, WA
(National stream quality accounting network station)

LOCATION.--Lat 48°55'21", long 117°46'32", in SW¼SW¼ sec.33, T.40 N., R.40 E., Stevens County, Hydrologic Unit 17020001, at State Highway 25 bridge at Northport, 9.9 mi downstream from gaging station at international boundary, and at mile 735.1.

DRAINAGE AREA.--60,200 mi^2, approximately.

PERIOD OF RECORD.--Water years 1910-11, 1952 to current year. Prior to November 1951 published as "at Northport." November 1951 to September 1957 published as 12399500 "at international boundary," October 1957 to September 1963 as "at Northport," October 1963 to September 1973 as "at international boundary."

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1951 to September 1973, April 1976 to September 1981.
pH: November 1951 to September 1969.
WATER TEMPERATURES: November 1951 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: February 1910 to January 1911.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV											
13...	1100	81700	150	8.30	7.5	1.6	11.2	100	62	26	75
FEB											
12...	1200	110000	141	8.30	1.5	0.5	13.0	97	K3	K11	80
MAR											
18...	1100	72300	164	8.10	4.0	0.8	12.8	--	31	K6	88
MAY											
22...	1100	107000	133	8.00	10.5	2.9	10.9	102	24	K10	64
JUL											
17...	1100	88100	117	8.10	18.5	1.2	9.1	102	K5	K7	57
SEP											
18...	1200	60800	133	8.00	15.0	1.0	9.9	103	38	160	69

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV											
13...	7	22	4.9	2.1	6	0.1	0.7	68	11	1.3	<0.1
FEB											
12...	13	24	4.8	1.4	4	0.1	0.7	67	9.6	0.8	0.1
MAR											
18...	18	26	5.5	2.1	5	0.1	0.8	70	17	1.1	0.2
MAY											
22...	11	19	4.1	1.9	6	0.1	0.8	53	10	0.9	0.1
JUL											
17...	6	17	3.6	1.4	5	0.1	0.8	51	10	0.7	0.1
SEP											
18...	3	20	4.7	2.0	6	0.1	0.9	66	9.8	1.0	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV											
13...	4.7	95	88	0.13	21000	<0.10	0.07	0.4	0.03	0.01	0.03
FEB											
12...	4.6	85	86	0.12	25200	0.17	0.03	<0.2	0.02	0.02	0.03
MAR											
18...	5.0	100	100	0.14	19500	1.30	0.16	0.3	0.06	0.04	0.05
MAY											
22...	6.0	70	75	0.09	20200	<0.10	0.08	0.8	0.04	0.03	0.02
JUL											
17...	4.1	62	68	0.08	14700	<0.10	0.06	0.2	0.02	<0.01	<0.01
SEP											
18...	4.0	80	82	0.11	13100	<0.10	0.06	0.3	0.01	0.01	0.02

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV											
13...	<10	<1	37	<0.5	18	<1	<3	8	6	6	<4
FEB											
12...	<10	<1	31	<0.5	<1	<1	<3	7	5	1	<4
MAR											
18...	--	--	--	--	--	--	--	--	--	--	--
MAY											
22...	20	<1	35	<0.5	17	8	<3	9	11	3	<4
JUL											
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
18...	10	<1	41	<0.5	8	<1	<3	5	<3	2	<4

DATE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDIMENT, SUS-PENDED (MG/L)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY)
NOV											
13...	7	<0.1	<10	<1	<1	<1	93	<6	25	2	441
FEB											
12...	<1	<0.1	<10	<1	<1	<1	110	<6	24	6	1780
MAR											
18...	--	--	--	--	--	--	--	--	--	0	--
MAY											
22...	3	<0.1	<10	1	<1	<1	81	<6	24	10	2890
JUL											
17...	--	--	--	--	--	--	--	--	--	4	951
SEP											
18...	<1	<0.1	<10	1	<1	<1	84	<6	12	2	328

12401500 KETTLE RIVER NEAR FERRY, WA
(International gaging station)

LOCATION.--Lat 48°58'53", long 118°45'55", in SE¼NW¼ sec. 10, T.40 N., R.32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi upstream from Catherine Creek, 1.3 mi south of international boundary and Ferry, 3.2 mi upstream from Toroda Creek, and at mile 84.02.

DRAINAGE AREA.--2,200 mi^2, approximately.

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,836.8 ft above National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records excellent except for estimated daily discharges, which are fair. Several small diversions upstream from station for irrigation. No regulation.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--57 years, 1,534 ft^3/s, 1,111,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft^3/s May 29, 1948, gage height, 21.15 ft; minimum, 14 ft^3/s, discharge measurement, Jan. 23, 1930, but may have been less during period of ice effect Jan. 18-23, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 26	0300	*13,900	*18.54	No other peak greater than base discharge.			

Minimum daily discharge, 85 ft^3/s Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	166	e250	e190	e140	188	227	2160	6320	899	143	91
2	340	190	e140	e180	e135	183	245	2650	6100	841	147	88
3	336	242	e110	e170	e140	181	281	4260	6150	794	142	88
4	327	311	e100	e170	144	191	308	6060	5600	748	142	85
5	323	419	e100	e180	151	189	345	5110	5650	692	153	87
6	318	428	e110	e185	160	190	380	4440	5280	638	141	113
7	314	410	188	e190	158	181	408	4320	5010	592	131	230
8	309	393	221	e190	159	178	441	4260	7830	546	133	551
9	300	380	244	e195	158	178	508	4140	6100	508	157	515
10	296	366	260	e195	160	182	681	3970	4900	475	222	467
11	327	359	264	e195	165	177	1010	3800	4300	440	277	463
12	382	364	257	e195	167	185	1490	3480	4010	407	257	474
13	555	384	251	e195	169	189	2000	3240	3830	384	232	487
14	519	419	259	e195	168	195	2590	3250	3470	356	205	517
15	481	413	262	e195	167	197	3080	3500	3420	336	185	497
16	455	368	262	e195	171	204	3430	3950	3080	316	170	493
17	431	319	251	e195	173	207	3890	5360	2680	304	158	484
18	413	333	226	e200	165	207	3760	7180	2420	205	146	532
19	387	363	175	e205	169	214	3350	8940	2260	274	136	669
20	369	396	189	208	167	221	2920	9980	2100	258	131	747
21	345	387	215	207	167	237	2600	9980	1910	243	131	749
22	332	363	237	214	172	233	2340	9940	1730	227	126	851
23	345	341	245	218	175	225	2170	10400	1570	212	127	754
24	350	345	245	219	180	215	2010	10800	1430	200	130	660
25	358	338	249	226	180	210	1860	12100	1370	191	127	602
26	388	324	246	212	177	204	1780	12600	1330	186	118	567
27	393	318	250	197	180	202	1730	9230	1220	183	109	527
28	374	312	e225	201	183	206	1770	7800	1110	174	106	496
29	364	306	e215	202	---	206	1930	7680	1030	162	102	471
30	350	310	e205	171	---	215	2000	7360	963	153	96	449
31	236	---	e195	154	---	220	---	7070	---	144	93	---
TOTAL	11367	10367	6649	6044	4600	6210	51534	199010	104173	12168	4673	13804
MEAN	367	346	214	195	164	200	1718	6420	3472	393	151	460
MAX	555	428	264	226	18[illegible]	237	3890	12600	7830	899	277	851
MIN	236	166	100	154	135	177	227	2160	963	144	93	85
AC-FT	22550	20560	13190	11990	9120	12320	102200	394700	206600	24140	9270	27380

CAL YR 1984	TOTAL	750516	MEAN	2051	MAX	12800	MIN	100	AC-FT	1489000
WTR YR 1985	TOTAL	430599	MEAN	1180	MAX	12600	MIN	85	AC-FT	854100

e Estimated.

12404500 KETTLE RIVER NEAR LAURIER, WA
(International gaging station)

LOCATION.--Lat 48°59'04", long 118°12'55", in SW¼NW¼ sec.11, T.40 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft downstream from Deep Creek, 1.1 mi south of international boundary, 1.1 mi southeast of Laurier, and at mile 29.71.

DRAINAGE AREA.--3,800 mi², approximately.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 ft above National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diversions for irrigation of about 720 acres in the United States (for 1946 from United States reports), and 2,090 acres in Canada from the Canada Year Book for 1940. Bonneville Power Administration satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--56 years, 2,925 ft³/s, 2,119,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s May 29, 1948, gage height, 17.25 ft; minimum, 88 ft³/s Dec. 1, 1936, gage height, 2.20 ft, but was probably less during winter of 1929-30.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 26	1530	*21,000	*13.17	No other peak greater than base discharge.			

Minimum discharge, 180 ft³/s Sept. 4-6, gage height, 2.45 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	620	e450	592	e390	e330	e390	590	4460	11700	1830	340	188
2	608	e320	505	e380	e330	e380	614	5180	11200	1710	339	186
3	598	e350	e320	e370	e330	e380	662	7440	11300	1590	337	183
4	588	e450	e210	e370	e330	e390	747	10600	10300	1490	342	180
5	578	e530	e200	e370	e340	e390	824	9600	9820	1390	335	182
6	568	690	e200	e380	e350	e390	887	8310	9670	1290	337	197
7	564	698	e230	e390	e350	e390	978	7920	9080	1220	325	221
8	558	679	e350	e390	e350	e390	1080	7920	12400	1150	310	389
9	547	662	e430	e390	e350	430	1290	7720	11600	1090	306	659
10	537	649	e480	e390	e350	438	1800	7460	9130	1020	328	658
11	555	637	e520	e390	e360	432	2790	7140	7950	949	373	624
12	621	639	e520	e390	e360	433	3910	6630	7330	896	436	641
13	729	665	e520	e390	e360	440	4770	6170	7040	852	419	653
14	860	716	e500	e390	e360	442	5810	6060	6550	798	397	684
15	825	762	e520	e390	e360	451	6690	6290	6190	755	365	726
16	782	720	e520	e390	e360	452	7140	6830	5930	721	340	745
17	747	665	e520	e390	e360	464	8310	8620	5230	699	320	773
18	717	616	e500	e400	e350	478	8000	11500	4700	669	302	762
19	693	632	e450	e410	e360	497	7200	14400	4370	636	282	845
20	665	682	e350	e410	e350	524	6390	16700	4100	605	266	982
21	642	702	e380	e410	e360	554	5680	17200	3780	574	254	1050
22	617	682	e420	e420	e370	590	5130	17000	3440	540	250	1090
23	604	660	e450	e430	e380	590	4750	17700	3150	508	245	1160
24	615	655	e480	e440	e390	590	4440	18400	2890	478	236	1050
25	635	637	e500	e450	e390	578	4160	19300	2720	452	234	965
26	645	625	e500	e430	e380	548	3970	20500	2600	430	230	910
27	668	616	e500	e400	e380	554	3850	16500	2450	411	223	866
28	663	612	e480	e400	e390	584	3770	13800	2280	399	215	822
29	643	603	e460	e400	---	566	4000	13000	2120	387	208	785
30	626	604	e440	e370	---	572	4190	12800	1980	369	198	756
31	592	---	e400	e350	---	590	---	12500	---	349	192	---
TOTAL	19910	18608	13447	12270	10030	14897	114422	345650	193000	26257	9284	19932
MEAN	642	620	434	396	358	481	3814	11150	6433	847	299	664
MAX	860	762	592	450	390	590	8310	20500	12400	1830	436	1160
MIN	537	320	200	390	330	380	590	4460	1980	349	192	180
AC-FT	39490	36910	26670	24340	19890	29550	227000	685600	382800	52080	18410	39540

CAL YR 1984	TOTAL	1411670	MEAN	3857	MAX	22300	MIN	200	AC-FT	2800000
WTR YR 1985	TOTAL	797707	MEAN	2185	MAX	20500	MIN	180	AC-FT	1582000

e Estimated.

12406500 LOON LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 48°01'42", long 117°36'14", in SW¼NW¼ sec.11, T.29 N., R.41 E., Stevens County, Hydrologic Unit 170200003, at south end of Loon Lake, 2.7 mi southeast of town of Loon Lake.

DRAINAGE AREA.--14.1 mi².

PERIOD OF RECORD.--April 1950 to June 1980, July 1980 to current year (fragmentary).

REVISED RECORDS.--WSP 1216: 1950. WSP 1933: Drainage area. WDR WA-80-2: 1979.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 29, 1951, water-stage recorder at site 0.2 mi north at same datum.

REMARKS.--Elevation controlled by dam at lake outlet. Some pumping for domestic use and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,382.71 ft May 3, 1950, but may have been higher sometime in 1951 water year while water-stage recorder was not operating; minimum observed, 2,378.14 ft Nov. 8, 1977, but may have been lower during period when water was below the intakes Aug. 1 to Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,380.71 ft May 15; minimum observed, 2,379.08 ft Sept. 28.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2380.31	---	---	---	---	2380.59	2380.56	---	---	---
2	---	---	---	2380.47	2380.34	2380.11	---	---	---	---	---	---
3	2380.01	2379.97	---	---	---	---	---	---	2380.55	2380.20	2379.64	---
4	---	---	2380.33	---	---	---	---	2380.61	2380.53	---	---	2379.16
5	---	---	2380.31	2380.48	---	---	---	---	---	---	---	---
6	2379.98	---	---	---	2380.26	2380.08	---	---	---	2380.14	---	---
7	---	2379.98	---	---	---	---	---	---	---	---	2379.57	2379.13
8	---	---	2380.33	---	---	---	---	2380.65	2380.55	---	---	---
9	2379.97	---	---	2380.47	2380.35	2380.05	---	---	---	---	---	---
10	2379.94	2380.01	---	---	---	---	---	---	---	2380.09	2379.51	---
11	---	---	---	---	---	---	---	2380.65	---	---	---	2379.11
12	---	---	2380.38	2380.46	---	2380.00	---	---	2380.50	---	---	---
13	2379.95	---	---	---	2380.32	---	---	---	---	2380.03	---	---
14	---	2380.03	---	---	---	---	---	---	---	---	2379.47	2379.10
15	---	---	2380.41	---	---	---	---	2380.71	2380.47	---	---	---
16	---	---	---	2380.47	2380.29	2379.97	---	---	---	---	---	---
17	2379.92	2380.08	---	---	---	---	2380.45	---	---	2379.93	2379.41	---
18	---	---	---	---	---	---	2380.48	2380.68	---	---	---	2379.18
19	---	---	2380.43	2380.48	---	---	---	---	2380.43	---	---	---
20	2379.90	---	---	---	2380.25	2379.97	2380.49	---	---	2379.89	---	---
21	---	2380.11	---	---	---	---	---	---	---	---	2379.36	2379.18
22	---	---	2380.45	---	---	---	---	2380.62	2380.33	---	---	---
23	---	---	---	2380.40	2380.22	2380.06	---	---	---	---	---	---
24	2379.88	2380.19	---	---	---	---	2380.54	---	---	2379.80	2379.31	---
25	---	---	---	---	---	---	---	2380.58	---	---	---	2379.12
26	---	---	2380.46	2380.35	---	2380.16	---	---	2380.26	---	---	---
27	2379.86	---	---	---	2380.18	2380.20	2380.56	---	---	2379.75	---	---
28	---	2380.28	---	---	---	---	---	---	---	---	2379.26	2379.08
29	---	---	2380.49	---	---	---	---	2380.57	2380.24	2379.71	---	---
30	---	---	---	2380.37	---	---	---	---	---	---	---	---
31	2379.84	---	---	---	---	---	---	---	---	2379.66	2379.22	---

12408500 MILL CREEK NEAR COLVILLE, WA

LOCATION.--Lat 48°34'44", long 117°51'56", in SW¼NW¼ sec.35, T.36 N., R.39 E., Stevens County, Hydrologic Unit 17020003, on right bank 3.0 mi northeast of Colville, 5.3 mi downstream from North Fork, and at mile 10.9.

DRAINAGE AREA.--83.0 mi^2.

PERIOD OF RECORD.--October 1939 to September 1972, October 1977 to current year.

REVISED RECORDS.--WSP 1042: 1940, 1942. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,950 ft, from topographic map. Prior to Mar. 2, 1940, nonrecording gage and Mar. 2, 1940, to Oct. 5, 1959, water-stage recorder at site 0.5 mi upstream at different datum (used as supplementary gage Nov. 2, 1952, to Oct. 5, 1959). Nov. 2, 1952, to Oct. 5, 1959, nonrecording gage and crest-stage gage at site 300 ft upstream at datum 0.47 ft higher.

REMARKS.--Estimated daily discharges: Dec. 16-23, 29-31, Jan. 1-10, Jan. 30 to Feb. 14, Apr. 14-18. Records excellent except for estimated daily discharges, which are fair. No regulation. Diversions for irrigation of about 50 acres upstream from station.

AVERAGE DISCHARGE.--41 years (water years 1940-72, 1978-85), 48.3 ft^3/s, 7.90 in/yr, 35,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 694 ft^3/s Apr. 24, 1969, gage height, 5.37 ft; maximum gage height, 5.65 ft May 10, 1961 (backwater from bridge); minimum discharge, 3.2 ft^3/s Jan. 10, 1962, result of freezeup, but may have been less during period of no gage-height record Feb. 1-4, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 220 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 17	unknown	*194	*3.58				

Minimum, 7.1 ft^3/s July 30, 31, Aug. 30, 31, Sept. 1, gage height, 1.91 ft Aug. 30, 31, Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	15	21	10	11	14	26	104	54	20	8.8	7.4
2	17	18	20	11	11	14	29	117	64	18	9.8	7.5
3	16	26	13	12	10	14	33	131	56	18	9.3	7.5
4	16	25	12	13	10	14	35	129	51	17	9.0	7.5
5	16	23	12	13	10	14	40	120	54	16	11	7.5
6	16	21	13	14	11	14	49	113	50	15	9.6	12
7	16	21	15	15	11	14	53	110	56	15	9.0	13
8	16	20	17	15	12	13	61	110	60	14	9.0	11
9	16	20	19	15	12	13	77	104	54	13	10	9.8
10	15	21	19	15	13	13	96	102	50	13	12	9.7
11	16	25	19	15	13	13	122	100	45	13	12	9.5
12	20	35	19	15	14	13	129	98	43	12	11	9.8
13	20	46	19	15	14	14	136	91	41	12	11	9.8
14	18	55	19	15	14	14	150	91	40	12	9.7	11
15	18	35	19	15	14	15	160	91	38	12	9.2	15
16	18	30	17	15	14	16	160	89	35	11	8.7	12
17	18	27	15	15	14	18	180	89	34	11	8.5	12
18	18	26	13	16	14	19	160	89	32	11	7.9	14
19	18	26	12	16	14	22	136	88	31	10	7.9	13
20	18	29	11	16	14	23	124	85	32	9.8	7.9	12
21	18	29	11	16	14	26	112	82	29	9.8	8.1	12
22	17	26	12	15	14	24	101	77	28	9.4	8.5	11
23	17	26	13	15	14	23	102	73	26	9.4	8.7	11
24	18	28	15	15	14	24	100	74	26	9.0	8.2	11
25	19	26	17	15	14	22	95	76	26	9.0	7.8	10
26	20	24	17	15	14	22	94	68	25	8.5	7.5	9.8
27	19	24	17	14	14	21	92	64	24	7.9	7.5	9.8
28	19	24	16	14	14	21	96	63	23	7.8	7.5	9.8
29	18	23	14	14	---	21	100	61	21	7.7	7.6	9.8
30	18	23	12	13	---	22	100	60	20	7.7	7.5	9.8
31	16	---	10	12	---	23	---	55	---	7.7	7.1	---
TOTAL	542	797	478	444	362	553	2948	2804	1168	366.7	277.3	315.0
MEAN	17.5	26.6	15.4	14.3	12.9	17.8	98.3	90.5	38.9	11.8	8.95	10.5
MAX	20	55	21	16	14	26	180	131	64	20	12	15
MIN	15	15	10	10	10	13	26	55	20	7.7	7.1	7.4
CFSM	.21	.32	.19	.17	.16	.21	1.18	1.09	.47	.14	.11	.13
IN.	.24	.36	.21	.20	.16	.25	1.32	1.26	.52	.16	.12	.14
AC-FT	1080	1580	948	881	718	1100	5850	5560	2320	727	550	625

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CAL YR 1984   TOTAL   27995     MEAN   76.5  MAX   424  MIN  10   CFSM  .92   IN.  12.55  AC-FT   55530
WTR YR 1985   TOTAL   11055.0   MEAN   30.3  MAX   180  MIN  7.1  CFSM  .37   IN.   4.95  AC-FT   21930
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12409000 COLVILLE RIVER AT KETTLE FALLS, WA

LOCATION.--Lat 48°35'40", Long 118°03'41", in NE¼NE¼ sec.30, T.36 N., R.38, E., Stevens County, Hydrologic Unit 17020003, on right bank 600 ft downstream from Washington Water Power Co.'s hydroelectric plant at foot of Meyers Falls, 1.0 mi south of town of Kettle Falls, and at mile 5.0.

DRAINAGE AREA.--1,007 mi^2.

PERIOD OF RECORD.--October 1922 to current year. Published as "at Meyer Falls" 1922-38.

REVISED RECORDS.--WSP 1316: 1938(M), 1941(M), 1948(M). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft, from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft upstream at different datum. Sept. 20, 1938, to Mar. 20, 1949, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 3-5, Dec. 11 to Jan. 24, Jan. 28 to Feb. 26. Records good except for estimated daily discharges, which are poor. Several diversions upstream from station for irrigation. Regulation at low flow by powerplant. Bonneville Power Administration satellite telemeter at station.

AVERAGE DISCHARGE.--63 years, 308 ft^3/s, 223,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 ft^3/s Jan. 21, 1974, gage height, 9.84 ft; maximum gage height, 10.17 ft Apr. 23, 1956; minimum discharge observed, 0.5 ft^3/s Aug. 15, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 950 ft^3/s Apr. 15, 17, gage height, 7.00 ft; minimum, 24 ft^3/s July 30, gage height, 4.93 ft, result of regulation by powerplant.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	173	275	170	150	222	453	589	327	112	52	62
2	169	109	258	170	140	222	479	600	387	111	57	64
3	173	252	190	180	130	219	500	639	394	104	63	66
4	170	337	140	180	130	224	512	653	360	104	66	63
5	172	289	130	190	140	226	520	650	328	102	66	59
6	171	254	226	200	140	226	531	630	320	99	77	67
7	168	240	331	200	160	226	537	608	326	72	83	78
8	168	235	351	190	160	227	545	594	362	80	64	84
9	161	230	340	200	150	233	566	578	356	85	66	84
10	158	230	321	210	170	233	612	560	312	82	71	89
11	167	246	310	220	190	237	682	542	296	80	76	100
12	177	292	310	220	200	247	735	527	282	76	87	100
13	193	362	310	220	190	253	794	507	267	73	92	97
14	189	408	320	230	200	263	838	492	258	73	82	107
15	182	386	320	220	210	278	895	508	251	73	71	119
16	180	318	300	220	190	295	922	499	242	71	68	118
17	176	286	230	230	190	324	944	475	230	70	68	105
18	175	270	180	240	190	339	940	457	216	61	68	119
19	177	264	170	240	190	374	908	435	199	63	56	136
20	177	273	170	240	200	424	855	417	191	57	63	132
21	177	298	180	230	200	482	800	400	180	58	71	125
22	177	306	190	240	200	519	752	379	171	48	74	116
23	177	285	200	240	210	532	707	349	159	52	74	113
24	177	297	190	240	220	537	692	350	155	51	74	113
25	180	304	200	237	220	503	667	362	150	44	70	110
26	189	290	210	237	220	472	636	341	156	54	65	109
27	197	272	200	233	222	449	621	324	144	54	67	109
28	196	269	190	210	222	440	612	333	129	35	56	107
29	194	270	180	180	---	437	611	375	123	47	71	90
30	193	278	170	140	---	440	610	336	116	56	64	105
31	187	---	160	140	---	443	---	339	---	30	61	---
TOTAL	5518	8323	7252	6497	5134	10546	20476	14848	7389	2177	2143	2946
MEAN	178	277	234	210	183	340	683	479	246	70.2	69.1	98.2
MAX	197	408	351	240	222	537	944	653	394	112	92	136
MIN	158	109	130	140	130	219	453	324	116	30	52	59
AC-FT	10940	16510	14380	12890	10180	20920	40610	29450	14660	4320	4250	5840

CAL YR 1984	TOTAL	188488	MEAN	515	MAX	1710	MIN	109	AC-FT	373900
WTR YR 1985	TOTAL	93249	MEAN	255	MAX	944	MIN	30	AC-FT	185000

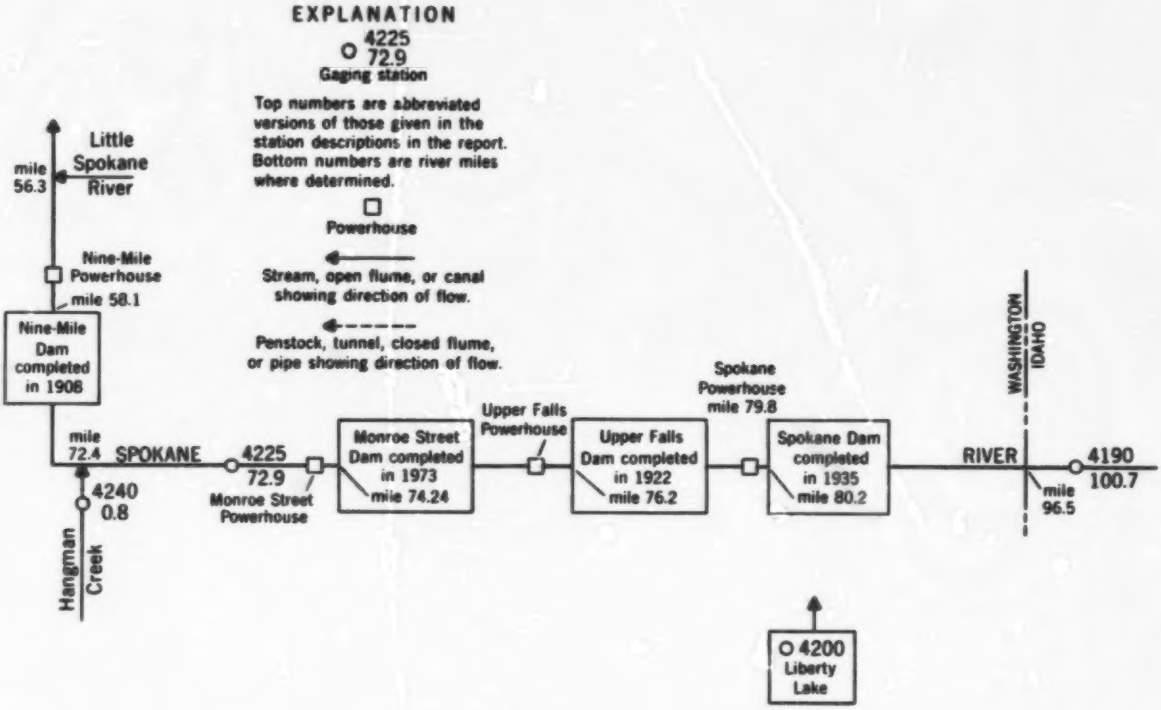
EXPLANATION
4225
72.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Little Spokane River
mile 56.3
Nine-Mile Powerhouse
mile 58.1
Nine-Mile Dam completed in 1908
mile 72.4
SPOKANE
4225
72.9
Monroe Street Powerhouse
4240
0.8
Hangman Creek
Monroe Street Dam completed in 1973 mile 74.24
Upper Falls Powerhouse
Upper Falls Dam completed in 1922 mile 76.2
Spokane Powerhouse mile 79.8
Spokane Dam completed in 1935 mile 80.2
RIVER
WASHINGTON
IDAHO
mile 96.5
4190
100.7
4200 Liberty Lake

Figure 21.--Gaging stations in Spokane River basin above Little Spokane River.

12419000 SPOKANE RIVER NEAR POST FALLS, ID

LOCATION.--Lat 47°42'11", long 116°58'37", in SW¼SW¼SW¼ sec.4, T.50 N., R.5 W., Kootenai County, Hydrologic Unit 17010305, on right bank 1.0 mi downstream from powerplant of Washington Water Power Co., 1.5 mi southwest of Post Falls, and at mile 100.7.

DRAINAGE AREA.--3,840 mi², approximately, of which about 122 mi² in the vicinity of Hayden Lake is noncontributing to this station.

PERIOD OF RECORD.--October 1912 to current year (prior to January 1913 monthly discharge only, published in WSP 870 and 1736). Prior to October 1949, published as "at Post Falls."

GAGE.--Water-stage recorder. Datum of gage is 2,050.00 ft referred to originally accepted elevation of 2,157.40 ft for the Geological Survey bench mark in southeast corner of Idaho First National Bank Building (see WSP 882). Datum of gage is 2,047.00 ft above National Geodetic Vertical Datum of 1929. Jan. 1, 1913, to Nov. 21, 1920, nonrecording gage and Nov. 22, 1920, to Sept. 15, 1934, recording gage 0.6 mi upstream. From Sept. 16, 1934, to Nov. 15, 1949, recording gage 0.8 mi upstream. From Nov. 16, 1949, at present site. Datum of all gages prior to Sept. 30, 1964, 50.0 ft lower.

REMARKS.--No estimated daily discharges. Records good. Rathdrum Prairie Canal diverts water upstream from gage for irrigation. Figures of daily discharge do not include water diverted by this canal. Flow regulated by dam at Post Falls and affected by storage in Coeur d'Alene Lake.

AVERAGE DISCHARGE.--River only, 73 years, 6,284 ft³/s, 4,553,000 acre-ft/yr; combined river and diversions upstream from gage, 73 years, 6,366 ft³/s, 4,612,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s when recorder was not operating Dec. 25, 1933 (determined from unpublished records collected by Washington Water Power Co. for station at Liberty Bridge); minimum, 65 ft³/s July 25, 30, 1973; minimum gage height, 4.68 ft July 20, 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,600 ft³/s Apr. 19, gage height, 20.32 ft; minimum, 298 ft³/s Aug. 15-18, gage height, 5.51 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1810	1740	3390	3020	1620	1450	6130	15500	17400	2580	1230	1150
2	1800	2080	3380	2950	1620	1640	6730	16100	16900	2600	1560	1140
3	1810	2350	3390	2650	1620	1680	7420	17300	16400	2780	1610	1140
4	1800	2390	3500	2450	1610	1690	8370	18700	15900	2970	1630	1130
5	1770	2420	3470	2360	1660	1960	9400	19600	14800	3000	1610	1130
6	1790	2420	3620	2380	1650	1860	10100	19900	13000	2910	1320	1410
7	1550	2440	3700	2170	1650	2040	10700	19800	13500	2420	687	1680
8	1530	2530	3950	2060	1540	1990	11400	19400	15600	1820	681	1680
9	1770	2660	4170	2060	1440	1930	12400	19100	16200	1510	667	1680
10	1810	2650	4210	2060	1440	1900	13200	18700	16700	1500	663	1680
11	1560	2650	4190	2000	1440	2050	15000	18400	16800	1660	664	1680
12	1760	2720	4180	1880	1450	2260	17000	18000	16600	1770	658	1450
13	1790	2790	4210	1880	1310	2290	18400	17400	16100	1750	674	1680
14	1780	2910	4190	1880	1500	2290	19900	17000	15600	1650	649	1720
15	1780	3040	4190	1870	1420	2620	21100	16400	13600	1260	621	1720
16	1810	3070	4200	1750	1410	2640	22700	16000	9710	1110	628	1990
17	1850	3050	4180	1680	1410	2830	24100	16000	6840	1030	634	2260
18	1850	3030	4040	1690	1410	3010	25100	16400	5920	942	679	2250
19	1840	3030	3870	1980	1420	3420	25500	16900	5940	1090	854	2210
20	1810	3050	3890	1790	1420	3710	25400	17500	4980	1100	922	2240
21	1810	3080	3910	1620	1420	4240	24500	18100	4410	1080	931	2240
22	1820	3050	3980	1550	1410	4460	23400	18500	4790	1080	953	2230
23	1840	3050	3730	1650	1410	4480	22200	18700	5040	1040	953	2240
24	1760	3070	3610	1670	1420	4520	20700	19100	5130	1050	952	2240
25	1700	3070	3650	1600	1420	5270	19500	19200	4410	1040	953	2230
26	1700	3070	3580	1590	1530	5960	18400	19300	3990	939	883	2220
27	1710	3070	3600	1620	1650	6290	17400	19100	3980	931	858	2220
28	1720	3070	3600	1570	1650	6110	16400	18700	3970	929	972	2240
29	1710	3230	3420	1580	---	6030	15700	18200	3590	738	1060	2310
30	1700	3390	3330	1560	---	6090	15300	18000	3120	623	1150	2280
31	1730	---	3260	1710	---	6080	---	17700	---	696	1150	---
TOTAL	54470	84170	117590	60280	41950	104790	503550	558700	310920	47598	29456	55470
MEAN	1757	2806	3793	1945	1498	3380	16790	18020	10360	1535	950	1849
MAX	1850	3390	4210	3020	1660	6290	25500	19900	17400	3000	1630	2310
MIN	1530	1740	3260	1550	1310	1450	6130	15500	3120	623	621	1130
AC-FT	108000	167000	233200	119600	83210	207900	998800	1108000	616700	94410	58430	110000
MEAN†	1757	2806	3793	1945	1498	3380	16790	18040	10300	1581	989	1862
AC-FT†	108000	167000	233200	119600	83210	207900	998800	1109000	618580	97230	60830	110800

CAL YR 1984 TOTAL 2417045 MEAN 6604 MAX 19500 MIN 604 AC-FT 4794000 MEAN† 6634 AC-FT† 4803000
WTR YR 1985 TOTAL 1968944 MEAN 5394 MAX 25500 MIN 621 AC-FT 3905000 MEAN† 5407 AC-FT† 3915000

† Adjusted for flow in Rathdrum Prairie Canal.

12420000 LIBERTY LAKE AT LIBERTY LAKE, WA

LOCATION.--Lat 47°39'09", long 117°05'20", in NE¼ sec.22, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on right wall of concrete outlet flume at town of Liberty Lake, 15.0 mi east of Spokane.

DRAINAGE AREA.--13.3 mi².

PERIOD OF RECORD.--December 1950 to December 1955 (fragmentary), January 1956 to July 1966, August 1966 to current year (fragmentary).

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1958, published at datum 2,046.48 ft higher.

REMARKS.--Stage controlled by gates at outlet. Some pumping from lake for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,051.81 ft, from high-water mark, occurred during period Jan. 19 to Feb. 5, 1974; minimum observed, 2,045.56 ft Nov. 11, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,049.74 ft Apr. 29; minimum observed, 2,047.36 ft Sept. 25, 26.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2047.76	2047.40	2047.94	---	---	---	2049.20	---	---	2048.92	---	---
2	---	---	---	2048.55	2048.50	---	---	---	---	---	2048.20	2047.58
3	---	---	---	---	---	2048.75	---	---	2049.40	---	---	---
4	---	---	2047.98	---	2048.50	---	---	---	---	---	---	---
5	---	---	---	---	---	---	2049.30	---	---	2048.90	2048.10	---
6	---	2047.50	---	---	---	---	---	2049.60	---	---	---	2047.50
7	---	---	---	---	---	2048.80	---	---	---	2048.90	---	---
8	2047.74	---	---	2048.50	2048.52	---	2049.38	---	2049.40	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	2047.48
10	---	2047.55	---	---	---	---	---	---	2049.36	---	2048.00	---
11	---	---	2048.00	---	---	2048.84	---	---	---	---	---	---
12	2047.70	---	---	---	---	---	2049.45	---	---	---	2047.90	---
13	---	2047.60	---	---	---	---	---	2049.55	---	2048.80	---	---
14	---	---	---	2048.48	2048.58	---	---	---	---	---	---	2047.44
15	2047.64	---	---	---	---	2048.90	2049.50	---	2049.26	2048.70	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	2048.10	---	2048.61	---	---	---	2049.16	---	2047.85	---
18	---	2047.70	---	---	---	2048.95	---	---	---	---	---	---
19	2047.60	---	---	2048.48	---	---	2049.60	---	---	2048.60	2047.80	---
20	---	---	---	---	---	---	---	2049.50	---	---	---	---
21	---	---	2048.20	---	2048.67	---	---	---	2049.10	---	---	---
22	2047.52	---	---	2048.48	---	2049.00	2049.66	---	---	2048.50	---	---
23	---	2047.80	2048.30	2048.47	---	---	---	2049.50	---	2048.48	---	---
24	---	---	---	---	2048.64	---	---	---	2049.00	---	2047.76	---
25	2047.50	2047.90	---	---	---	2049.05	2049.70	---	---	---	---	2047.36
26	---	---	---	2048.48	---	2049.00	---	---	---	---	2047.70	2047.36
27	---	---	---	2048.49	---	---	---	---	---	2048.45	---	---
28	---	---	2048.40	---	2048.70	---	---	2049.48	---	2048.30	---	---
29	---	---	---	---	---	2049.00	2049.74	---	2048.96	---	---	---
30	---	---	---	---	---	---	---	---	---	---	2047.60	---
31	---	---	---	---	---	---	---	---	---	---	---	---

12422500 SPOKANE RIVER AT SPOKANE, WA

LOCATION.--Lat 47°39'34", long 177°26'53", in SW¼SW¼ sec.13, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010305, on right bank at Cochran Street in Spokane, 0.5 mi upstream from Hangman Creek, and at mile 72.9.

DRAINAGE AREA.--4,290 mi^2, approximately.

PERIOD OF RECORD.--April 1891 to current year.

REVISED RECORDS.--WSP 532: 1891-1904. WSP 1246: Drainage area. WSP 1286: 1907-09.

GAGE.--Water-stage recorder. Datum of gage is 1,696.6 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to July 1, 1921, water-stage recorders and nonrecording gages at several sites within 4 mi of present site at various datums.

REMARKS.--No estimated daily discharges. Records excellent. Flow partly regulated by powerplants of Washington Water Power Co. at Post Falls, Idaho, 28.8 mi upstream and at Spokane, 1.3 mi upstream, and by Coeur d'Alene Lake, Idaho. Rathdrum Prairie Canal diverts water above station for irrigation. In 1946, approximately 22,600 acres, of which about 15,000 acres utilized surface water, were under irrigation upstream from Spokane. Since 1966 irrigation has been from many wells in the valley near the river with only about 3,000 acres irrigated from the river. Chemical analyses October 1972 to September 1973.

AVERAGE DISCHARGE.--94 years, 6,850 ft^3/s, 4,963,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft^3/s, estimated, May 31, 1894 (see WSP 532); minimum, 95 ft^3/s Sept. 19, 1956, gage height, 15.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,400 ft^3/s Apr. 19, gage height, 25.76 ft; minimum daily, 1,090 ft^3/s Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2310	2220	3640	3420	2130	2070	6040	15800	17900	3220	1350	1430
2	2220	2410	3660	3390	1990	2010	6320	16300	17400	3140	1790	1470
3	2280	2670	3630	3190	1990	2130	6960	17400	16800	3160	1840	1470
4	2250	2710	3750	2970	1970	2160	7750	18800	16300	3360	1850	1460
5	2240	2800	3730	2870	1980	2220	8680	20000	15300	3360	1870	1460
6	2250	2780	3790	2860	1950	2310	9440	20400	13900	3350	1830	1530
7	2270	2810	3940	2810	1980	2430	10100	20400	13000	2980	1340	1910
8	2040	2780	4040	2580	1980	2400	10700	20000	15800	2550	1200	1940
9	2060	3010	4310	2590	1990	2370	11700	19700	16400	2150	1220	1930
10	2240	2980	4400	2570	1970	2280	12600	19400	17000	2070	1210	1940
11	2250	2970	4340	2580	1970	2350	14200	19000	17100	2060	1170	1950
12	2070	2990	4350	2460	1970	2560	16300	18500	16900	2260	1170	1820
13	2270	3090	4370	2430	1880	2630	18100	18000	16500	2230	1200	2010
14	2250	3130	4370	2380	2000	2600	19600	17500	16000	2200	1130	2030
15	2270	3250	4390	2400	1930	2770	20800	16900	14600	1890	1130	2040
16	2270	3340	4390	2350	1930	2930	22400	16300	10500	1660	1140	2110
17	2300	3360	4380	2230	1950	2980	23700	16300	7880	1630	1120	2450
18	2310	3330	4350	2250	1920	3180	24800	16600	6580	1490	1090	2490
19	2330	3320	4160	2420	1930	3440	25500	17100	6480	1550	1190	2440
20	2290	3330	4110	2360	1940	3740	25600	17700	5990	1580	1280	2450
21	2280	3370	4130	2200	1950	4100	24800	18300	4930	1550	1290	2490
22	2300	3380	4190	2080	1930	4430	23900	18800	5270	1510	1290	2490
23	2290	3340	4090	2150	1930	4510	22800	19100	5440	1480	1320	2540
24	2320	3400	3890	2180	1930	4540	21500	19400	5550	1470	1290	2480
25	2190	3370	3920	2180	1950	4890	20200	19600	5140	1470	1290	2520
26	2200	3390	3910	2090	1950	5690	19100	19700	4540	1370	1310	2490
27	2230	3400	3820	2170	2130	6010	18000	19600	4480	1360	1210	2480
28	2220	3410	3930	2110	2110	6000	17000	19200	4400	1350	1290	2500
29	2190	3470	3790	2060	---	5930	16100	18700	4220	1320	1330	2560
30	2220	3630	3670	2110	---	6010	15700	18500	3790	1100	1400	2590
31	2220	---	3660	2120	---	5980	---	18200	---	1140	1450	---
TOTAL	69430	93440	125080	76560	55230	109650	500390	571200	326090	63010	41590	63470
MEAN	2240	3115	4035	2470	1973	3537	16680	18430	10870	2033	1342	2116
MAX	2330	3630	4400	3420	2130	6010	25600	20400	17900	3360	1870	2590
MIN	2040	2220	3630	2060	1880	2010	6040	15800	3790	1100	1090	1430
AC-FT	137700	185300	248100	151900	109500	217500	992500	1133000	646800	125000	82490	125900

CAL YR 1984 TOTAL 2586600 MEAN 7067 MAX 20400 MIN 1240 AC-FT 5131000
WTR YR 1985 TOTAL 2095140 MEAN 5740 MAX 25600 MIN 1090 AC-FT 4156000

12424000 HANGMAN CREEK AT SPOKANE, WA

LOCATION.--Lat 47°39'10", long 117°26'55", in NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, on left bank 0.3 mi downstream from bridge on Interstate 90 in Spokane, and at mile 0.8.

DRAINAGE AREA.--689 mi².

PERIOD OF RECORD.--April 1948 to September 1977; October 1977 to September 1978 (discharges above 20 ft³/s only), October 1978 to current year. Prior to October 1958, published as Latah Creek at Spokane.

REVISED RECORDS.--WSP 1933: Drainage area. WSP 2133: 1965(P).

GAGE.--Water-stage recorder. Datum of gage is 1,717.42 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 22, 1948, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 3-24, Jan. 1-20, Jan. 23 to Feb. 9. Records good except those for Mar. 4 to Apr. 9, which are fair. No regulation. Some diversions for irrigation upstream from station. National Weather Service telemeter at station.

AVERAGE DISCHARGE.--36 years (water years 1949-77, 1979-85), 248 ft³/s, 4.89 in/yr, 179,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s Feb. 3, 1963, gage height, 13.35 ft; minimum, 1.4 ft³/s Sept. 6, 7, 9, 10, 14-17, 1973; minimum gage height, 1.43 ft part or all of each day Aug. 19, 20, 28, Sept. 14, 15, 17-22, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	0100	2,820	6.54	Apr. 1	2300	2,830	6.56
Mar. 24	0715	*4,120	*7.67				

Minimum discharge, 12 ft³/s July 26, 29-31, gage height, 1.60 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	41	205	90	80	737	2390	158	79	27	14	13
2	32	48	158	84	72	774	2100	156	91	26	14	14
3	31	49	94	78	62	637	1670	158	81	26	14	13
4	30	49	86	72	56	540	1220	164	74	23	15	14
5	30	48	78	74	58	452	897	167	70	23	15	14
6	30	54	72	76	60	384	736	152	68	23	15	14
7	30	52	66	76	62	361	607	138	75	23	15	13
8	30	48	60	76	64	345	542	128	91	23	15	15
9	30	48	60	76	66	395	527	120	146	22	16	16
10	30	49	74	76	76	478	529	118	127	21	17	18
11	31	52	80	76	79	638	536	113	98	19	18	17
12	31	57	82	76	82	675	536	105	84	19	18	18
13	32	60	82	76	87	694	458	101	76	18	18	18
14	32	61	80	76	88	813	400	97	71	18	17	19
15	32	66	72	78	97	1110	377	97	66	17	17	21
16	32	68	64	78	125	1250	369	96	61	17	15	23
17	32	71	56	80	177	1370	350	93	57	16	16	26
18	32	64	50	80	186	1470	303	84	52	16	16	25
19	32	60	50	80	221	1750	272	78	50	16	15	26
20	33	62	52	80	206	2220	283	76	45	15	14	26
21	35	66	58	86	192	2290	248	76	42	14	14	27
22	35	75	64	90	182	1410	222	75	40	14	14	28
23	35	81	70	90	187	1020	217	72	38	14	15	30
24	35	92	78	90	238	3280	266	70	36	13	14	28
25	36	105	86	90	502	1880	231	67	34	13	14	26
26	39	120	115	90	786	1140	205	65	34	13	14	25
27	39	110	127	90	789	911	190	62	32	13	14	23
28	43	94	119	90	685	788	190	65	32	13	13	22
29	41	105	114	88	---	733	169	65	30	13	13	22
30	39	219	101	88	---	819	161	71	28	12	13	22
31	39	---	94	86	---	2130	---	76	---	13	13	---
TOTAL	1040	2174	2647	2536	5565	33494	17191	3163	1908	553	465	616
MEAN	33.5	72.5	85.4	81.8	199	1079	573	102	63.6	17.8	15.0	20.5
MAX	43	219	205	90	789	3280	2390	167	146	27	18	30
MIN	30	41	50	72	56	345	161	62	28	12	13	13
CFSM	.05	.11	.12	.12	.29	1.57	.83	.15	.09	.03	.02	.03
IN.	.06	.12	.14	.14	.30	1.81	.93	.17	.10	.03	.03	.03
AC-FT	2060	4310	5250	5030	11040	66360	34100	6270	3780	1100	922	1220

CAL YR 1984 TOTAL 122170 MEAN 334 MAX 6480 MIN 23 CFSM .48 IN. 6.60 AC-FT 242300
WTR YR 1985 TOTAL 71312 MEAN 195 MAX 3280 MIN 12 CFSM .28 IN. 3.85 AC-FT 141400

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WA

LOCATION.--Lat 47°47'05", long 117°24'12", in NE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, on left bank 50 ft upstream from county bridge, 0.5 mi east of Dartford, 1.7 mi downstream from Deadman Creek, 7.5 mi north of Spokane, and at mile 11.4.

DRAINAGE AREA.--665 mi².

PERIOD OF RECORD.--April 1929 to September 1932, December 1946 to current year.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1930, 1932(M), 1947-49(M). WSP1446: 1951(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,590 ft, from topographic map. Prior to Mar. 16, 1951, nonrecording gage and Mar. 16, 1951 to July 5, 1961 water-stage recorder, at site 0.5 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 3-7, 19-22, Dec. 30 to Jan. 8, Jan. 31 to Feb. 4. Records excellent except for estimated daily discharges, which are fair. No regulation. Small diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--41 years (water years 1930-32, 1948-85), 310 ft³/s, 6.33 in/yr, 224,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,170 ft³/s Feb. 17, 1970, gage height, 7.29 ft; minimum observed, 63 ft³/s July 24, 1930, gage height, 1.07 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 940 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	1330	*829	*4.23				

Minimum discharge, 103 ft³/s July 22, gage height, 1.91 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	181	272	200	170	242	581	415	251	148	121	115
2	171	210	259	200	170	244	719	408	245	149	125	118
3	171	277	220	200	170	244	753	405	246	149	124	118
4	171	230	200	200	180	243	791	402	239	147	120	118
5	171	212	200	200	202	245	732	401	237	144	118	119
6	171	208	210	200	208	244	697	392	241	143	119	120
7	173	207	220	210	209	244	662	380	259	143	117	120
8	171	207	231	210	216	245	648	379	266	141	116	122
9	171	212	235	224	218	250	659	373	245	139	118	125
10	173	219	294	224	218	268	673	362	232	137	122	126
11	175	229	280	221	217	277	693	349	225	134	125	128
12	183	256	260	221	221	290	706	340	218	135	124	127
13	187	292	250	221	218	298	704	332	212	133	124	127
14	181	286	245	219	223	306	701	342	208	132	121	128
15	177	261	250	219	224	320	704	349	204	131	120	131
16	178	246	247	219	218	331	716	330	198	129	119	134
17	179	238	241	219	221	350	721	315	194	127	118	136
18	179	243	193	219	217	378	699	303	188	126	116	151
19	177	248	190	219	217	408	673	296	182	124	115	160
20	177	256	200	224	225	452	639	291	175	124	116	153
21	178	280	210	224	221	540	605	283	171	121	118	146
22	177	264	230	224	221	530	576	277	168	118	118	143
23	177	256	257	224	221	488	566	268	164	118	118	143
24	181	295	220	224	224	579	556	259	163	116	118	142
25	184	280	237	224	235	544	518	252	163	118	117	141
26	187	261	233	224	238	495	490	246	162	117	115	141
27	187	251	233	222	236	480	473	244	160	115	114	140
28	194	269	232	219	237	461	460	251	157	114	114	139
29	195	289	222	219	---	444	445	248	155	113	114	140
30	189	283	210	186	---	462	427	256	151	113	113	142
31	184	---	200	170	---	534	---	272	---	112	113	---
TOTAL	5540	7446	7181	6629	5995	11436	18987	10020	6079	4010	3670	3993
MEAN	179	248	232	214	214	369	633	323	203	129	118	133
MAX	195	295	294	224	238	579	791	415	266	149	125	160
MIN	171	181	190	170	170	242	427	244	151	112	113	115
CFSM	.27	.37	.35	.32	.32	.55	.95	.49	.31	.19	.18	.20
IN.	.31	.42	.40	.37	.34	.64	1.06	.56	.34	.22	.21	.22
AC-FT	10990	14770	14240	13150	11890	22680	37660	19870	12060	7950	7280	7920

CAL YR 1984 TOTAL 147622 MEAN 403 MAX 1420 MIN 163 CFSM .61 IN. 8.26 AC-FT 292800
WTR YR 1985 TOTAL 90986 MEAN 249 MAX 791 MIN 112 CFSM .37 IN. 5.09 AC-FT 180500

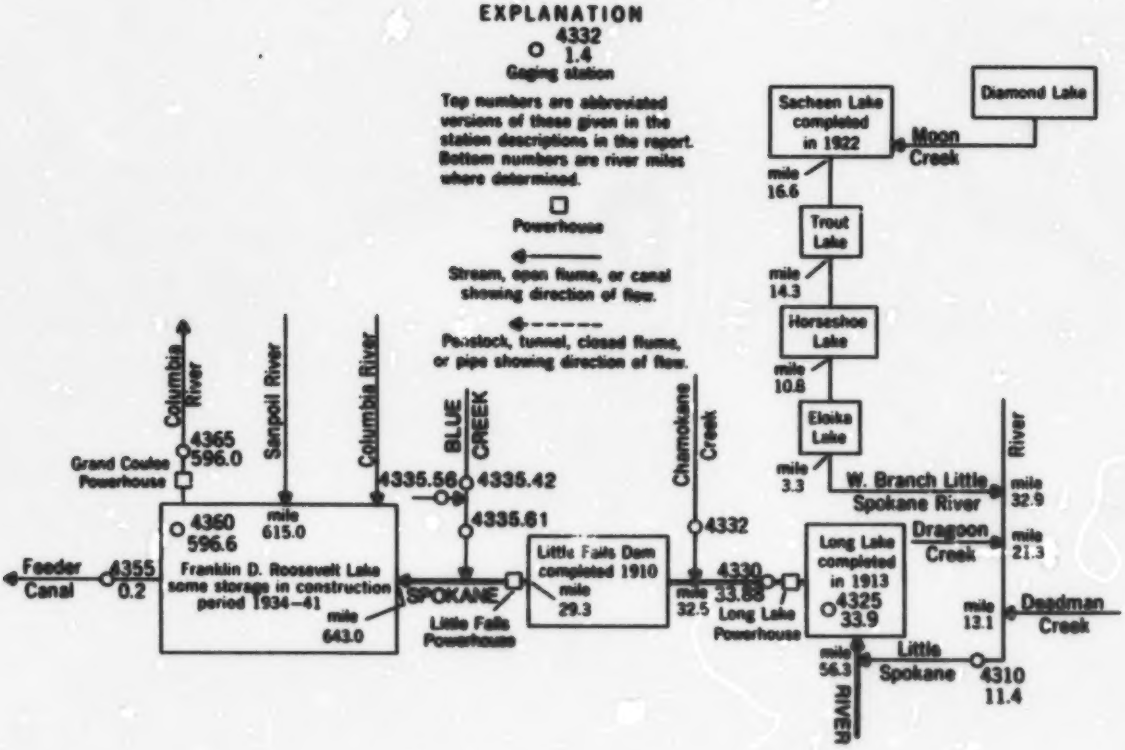
EXPLANATION
4332
1.4
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Columbia River
4365
596.0
Grand Coulee Powerhouse
Sanpoil River
Columbia River
BLUE CREEK
4335.56
4335.42
4335.61
4360
596.6
mile
615.0
Feeder Canal
4355
0.2
Franklin D. Roosevelt Lake some storage in construction period 1934–41
mile
643.0
SPOKANE
Little Falls Powerhouse
Little Falls Dam completed 1910
mile
29.3
Chamokane Creek
4332
mile
32.5
4330
33.88
Long Lake Powerhouse
Long Lake completed in 1913
4325
33.9
Sacheen Lake completed in 1922
Diamond Lake
Moon Creek
mile
16.6
Trout Lake
mile
14.3
Horseshoe Lake
mile
10.8
Eloika Lake
mile
3.3
W. Branch Little Spokane River
River
mile
32.9
Dragoon Creek
mile
21.3
mile
13.1
Deadman Creek
mile
56.3
Little Spokane
RIVER
4310
11.4

Figure 22.—Gaging stations in Spokane River basin from Little Spokane River downstream and at Grand Coulee Dam.

BEST COPY AVAILABLE

12432500 LONG LAKE AT LONG LAKE, WA

LOCATION.--Lat 47°50'12", long 117°50'20", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, at left end of spillway at Long Lake Dam on Spokane River, 12.0 mi north of Reardon, and at mile 33.9.

DRAINAGE AREA.--6,020 mi², approximately.

PERIOD OF RECORD.--October 1913 to current year. Prior to October 1950 monthend contents only, published in WSP 1316. October 1950 to September 1977 monthend stage and contents only.

REVISED RECORDS.--WSP 1736: Monthend contents for 1916-33 corrected. WSP 1933: Drainage area.

GAGE.--Water-stage recorder with remote indicator in powerhouse. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.).

REMARKS.--Reservoir is formed by concrete dam, completed in 1913 and raised in 1950. Capacity, 104,200 acre-ft between elevations 1,512 ft and 1,536 ft, normal limits of operation. Contents at elevation 1,512 ft by capacity table used prior to October 1915, 148,600 acre-ft. Records given herein represent usable contents. Water used for power. About 25,000 acres irrigated above station, largely from wells in the Spokane Valley. Flow regulated by Coeur d'Alene Lake and powerplants along Spokane River.

COOPERATION.--Lake elevations and capacity table furnished by Washington Water Power Co. Records not reviewed.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 107,600 acre-ft Jan. 16, 1974, elevation, 1,536.67 ft; minimum, since filling reservoir in 1920, 214 acre-ft Feb. 16, 1985, elevation, 1,512.06 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,063 acre-ft July 6, elevation, 1,535.97 ft; minimum, 214 acre-ft Feb. 16, elevation, 1,512.06 ft.

Capacity table (elevation, in feet and usable contents, in acre-feet)
(Based on data furnished by Washington Water Power Company)

1,512	0	1,526	56,330	1,534	94,240
1,513	3,570	1,528	65,460	1,535	99,190
1,517	18,640	1,531	79,740	1,536	104,200
1,520	30,550	1,532	84,540	1,537	109,300
1,522	38,880	1,533	89,360		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1534.63	1534.45	1534.57	1532.78	1517.95	1512.60	1526.65	1535.16	1535.06	1535.70	1535.30	1535.71
2	1534.50	1534.42	1534.57	1532.46	1517.59	1513.95	1527.89	1535.21	1535.09	1535.62	1535.58	1535.63
3	1534.53	1534.50	1534.55	1532.07	1517.29	1515.95	1529.17	1535.20	1535.17	1535.75	1535.68	1535.50
4	1534.45	1534.50	1534.48	1531.64	1516.71	1515.71	1530.39	1535.25	1535.08	1535.76	1535.50	1535.47
5	1534.55	1534.85	1534.45	1531.10	1516.10	1514.76	1531.86	1535.30	1535.00	1535.84	1535.60	1535.35
6	1535.18	1534.75	1534.44	1530.57	1515.60	1513.79	1533.45	1535.10	1535.03	1535.80	1535.63	1535.29
7	1534.74	1534.58	1534.48	1530.08	1515.15	1512.91	1535.00	1535.01	1535.08	1535.61	1535.51	1535.60
8	1534.54	1534.41	1534.33	1529.39	1514.60	1512.28	1535.32	1535.17	1535.02	1535.40	1535.41	1535.60
9	1534.45	1534.40	1534.35	1528.68	1514.05	1512.75	1534.80	1535.11	1535.20	1535.23	1535.60	1535.55
10	1534.45	1534.44	1534.48	1528.10	1513.50	1512.88	1533.92	1535.06	1535.02	1535.28	1535.65	1535.45
11	1534.32	1534.45	1534.67	1527.45	1513.10	1512.70	1535.00	1535.17	1535.29	1535.18	1535.60	1535.10
12	1534.06	1534.50	1534.75	1526.70	1513.25	1512.76	1535.38	1535.19	1535.30	1535.22	1535.70	1534.78
13	1534.42	1534.56	1534.83	1525.98	1512.58	1512.80	1535.53	1535.13	1535.32	1535.25	1535.70	1534.96
14	1534.25	1534.44	1534.86	1525.22	1512.22	1512.88	1535.20	1535.11	1535.30	1535.30	1535.55	1535.02
15	1534.12	1534.46	1534.87	1524.44	1512.53	1512.90	1535.21	1535.12	1535.25	1535.30	1535.75	1535.08
16	1534.40	1534.61	1534.89	1523.53	1512.29	1512.87	1535.10	1535.13	1535.43	1535.35	1535.57	1534.72
17	1534.52	1534.63	1534.90	1522.81	1512.39	1512.90	1535.14	1535.12	1535.70	1535.23	1535.62	1534.45
18	1534.45	1534.59	1534.91	1521.88	1512.59	1513.09	1535.06	1535.12	1535.79	1535.35	1535.67	1534.41
19	1534.37	1534.69	1534.84	1521.13	1512.63	1513.25	1535.05	1535.12	1535.77	1535.30	1535.75	1534.40
20	1534.40	1534.79	1534.84	1520.35	1512.27	1514.43	1535.12	1535.12	1535.80	1535.35	1535.50	1534.48
21	1534.55	1534.63	1534.57	1519.47	1512.40	1515.40	1535.00	1535.20	1535.78	1535.33	1535.62	1534.65
22	1534.45	1534.63	1534.50	1518.52	1512.42	1516.25	1535.10	1535.23	1535.84	1535.27	1535.50	1534.53
23	1534.49	1534.61	1534.43	1517.47	1512.30	1516.70	1535.00	1535.23	1535.85	1535.45	1535.50	1534.60
24	1534.62	1534.55	1534.25	1516.74	1512.40	1518.15	1535.01	1535.26	1535.83	1535.42	1535.65	1534.55
25	1534.50	1534.58	1534.09	1516.00	1512.45	1519.28	1535.08	1535.25	1535.77	1535.55	1535.78	1534.50
26	1534.63	1534.59	1533.95	1516.50	1512.68	1520.60	1535.05	1535.26	1535.80	1535.50	1535.60	1534.46
27	1534.60	1534.66	1533.83	1516.70	1512.56	1521.60	1535.10	1535.23	1535.79	1535.43	1535.47	1534.43
28	1534.63	1534.59	1533.72	1517.25	1512.83	1522.35	1535.12	1535.15	1535.74	1535.35	1535.37	1534.60
29	1534.50	1534.53	1533.55	1518.55	---	1523.20	1535.08	1535.05	1535.75	1535.30	1535.47	1534.62
30	1534.35	1534.57	1533.38	1518.67	---	1523.91	1535.01	1535.16	1535.65	1535.37	1535.54	1534.56
31	1534.43	---	1533.15	1518.08	---	1525.14	---	1535.10	---	1535.15	1535.60	---
MEAN	1534.49	1534.57	1534.40	1523.88	1513.73	1515.83	1534.03	1535.16	1535.45	1535.42	1535.58	1534.93
MAX	1535.18	1534.85	1534.91	1532.78	1517.95	1525.14	1535.53	1535.30	1535.85	1535.84	1535.78	1535.71
MIN	1534.06	1534.40	1533.15	1516.00	1512.22	1512.28	1526.65	1535.01	1535.00	1535.15	1535.30	1534.40
†	96368	97063	90089	22929	2963	52579	99245	99697	102457	99948	102206	97013
‡	-843	+695	-6974	-67160	-19966	+49616	+46666	+452	+2760	-2509	+2258	-5193

CAL YR 1984......................‡ -12117
WTR YR 1985......................‡ -198

† Contents, in acre-feet, on last day of month.
‡ Change in contents, in acre-feet.

12433000 SPOKANE RIVER AT LONG LAKE, WA
(National stream quality accounting network station)

LOCATION.--Lat 47°50'12", long 117°50'25", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on left bank at Long Lake powerhouse, 1.4 mi upstream from Chamokane Creek, 12.0 mi north of Reardan, and at mile 33.88.

DRAINAGE AREA.--6,020 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,299.00 ft above National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.). Oct. 1, 1978, to Sept. 30, 1981, published at datum 1,300 ft lower.

REMARKS.--Flow regulated by Coeur d'Alene Lake and Long Lake (see sta 12432500) for powerplants of Washington Water Power Co. About 25,000 acres irrigated upstream from station, largely from wells in the Spokane Valley.

COOPERATION.--Discharge records furnished by Washington Water Power Co.; three discharge measurements made by Geological Survey.

AVERAGE DISCHARGE.--46 years, 7,949 ft³/s, 5,759,000 acre-ft/yr, adjusted for storage in Long Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft³/s Jan. 19, 1974, gage height, 78.40 ft; maximum recorded gage height, 78.66 ft May 24, 1948; minimum daily discharge, 114 ft³/s Sept. 2, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,500 ft³/s Apr. 18, gage height, 70.75 ft; minimum, 210 ft³/s Mar. 3, gage height, 60.73 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2980	3050	4620	5180	3460	4040	5880	16300	18700	4250	1940	1800
2	3190	3380	4570	5190	3670	1520	5870	17000	18100	4100	1310	2240
3	3020	3500	4620	5190	3230	210	6260	18000	17500	3700	2280	2380
4	3140	3380	4530	5150	3980	3850	6450	19200	17400	4120	2910	2360
5	2640	2780	4670	5240	4070	5280	6300	20400	16500	3870	2190	2310
6	1540	3820	4550	5230	4020	5290	6250	21600	15300	4280	2520	2360
7	3830	4060	4630	5230	4060	5180	7010	21300	13200	4440	2160	1430
8	3650	4090	5260	5240	4010	4540	11000	20600	16500	4170	2200	2540
9	3170	3970	5220	5220	4010	3050	13900	20800	16700	3300	1410	2690
10	2990	3790	5220	5280	4020	3480	16600	20300	18100	2800	1550	3000
11	3410	3800	5260	5250	3790	4180	12200	19500	17000	3000	1870	3640
12	3410	3880	5220	5260	2940	4100	15500	19400	17500	2910	1460	3490
13	2160	4020	5260	5270	4030	4180	18400	19100	17100	2880	1850	2080
14	3460	4310	5220	5270	3480	4360	21100	18500	16900	2770	2030	2660
15	3330	4050	5250	5210	2810	4810	21700	17900	15900	2730	1400	2490
16	2270	3810	5250	5250	3530	5240	23400	17200	11700	2450	2270	3790
17	2580	4240	5260	5230	2810	5220	24600	17300	8620	2480	1640	4040
18	3360	4360	5210	5290	2790	5410	25900	17200	7320	1080	1440	3440
19	3300	4020	5200	5230	3100	5460	26100	17800	7260	2000	1630	3210
20	3020	4070	5290	5230	3790	5550	26200	18100	6800	1950	2320	3040
21	2600	4500	5260	5220	2630	5540	26100	18600	6000	1970	1620	2680
22	3360	4210	5300	5210	3080	5620	24600	19100	5930	2200	2330	3520
23	3020	4500	5230	5140	3160	5570	24200	19500	6080	1450	1640	3050
24	2670	4450	5290	5060	3110	5640	22900	19800	6280	2200	1940	3340
25	3300	4300	5250	4510	3120	5670	21200	20300	6110	1550	1530	3400
26	2620	4300	5230	2510	3650	5010	20500	20400	5470	2220	2400	3270
27	3180	4310	5240	2890	4130	5730	19000	20400	5340	2090	2350	3350
28	2890	4480	5200	2020	3370	5770	17800	20200	5310	2170	2120	2560
29	3310	4600	5200	883	---	5790	17300	19800	5140	2160	1650	3350
30	3170	4590	5170	2880	---	5820	16800	19100	4930	1620	1630	3360
31	2960	---	5190	4200	---	5790	---	18900	---	2120	1880	---
TOTAL	93530	120540	157870	145163	97850	146900	511020	593600	350770	85030	59070	86870
MEAN	3017	4018	5093	4683	3495	4739	17030	19150	11690	2743	1905	2896
MAX	3830	4600	5300	5290	4130	5820	26200	21600	18700	4440	2910	4040
MIN	1540	2780	4530	883	2630	210	5870	16300	4930	1080	1310	1430
AC-FT	185500	239100	313100	287900	194100	291400	1014000	1177000	695800	168700	117200	172300
MEAN†	3004	4030	4978	3589	3135	5546	17830	19142	11740	2703	1943	2808
AC-FT†	184700	239800	306100	220700	174100	341000	1061000	1177000	698600	166200	119500	167100

CAL YR 1984 TOTAL 3054825 MEAN 8347 MAX 21100 MIN 660 AC-FT 6059000 MEAN† 8330 AC-FT† 6047000
WTR YR 1985 TOTAL 2448213 MEAN 6707 MAX 26200 MIN 210 AC-FT 4856000 MEAN† 6707 AC-FT† 4856000

† Adjusted for change in contents in Long Lake.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued
(National stream quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 47°50'26", long 117°51'11", in SE¼NW¼ sec.14, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on right bank 0.7 mi downstream from Long Lake Dam, and 13 mi north of Reardan.

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to September 1981.
WATER TEMPERATURES: July 1959 to September 1962, October 1966 to September 1970, March 1973 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 15...	1100	4100	186	7.80	7.5	2.0	10.0	87	<1	K4	88
JAN 16...	1000	5250	150	7.80	3.5	1.5	10.9	85	<1	K1	71
MAR 20...	1100	5580	182	7.60	5.0	6.9	11.9	98	K2	<1	87
MAY 28...	1200	20100	75	7.70	15.5	2.5	11.8	125	K3	K6	30
JUL 10...	0900	5000	118	7.90	18.5	1.3	9.1	102	K1	K1	53
SEP 04...	1300	3880	188	7.80	18.0	0.9	8.9	100	<1	K2	93

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 15...	6	22	8.1	4.2	9	0.2	1.6	82	10	2.9	0.1
JAN 16...	5	18	6.4	3.8	10	0.2	2.5	66	10	4.1	<0.1
MAR 20...	13	22	7.8	5.4	12	0.3	2.0	74	13	3.8	<0.1
MAY 28...	3	7.9	2.5	2.0	12	0.2	0.9	27	8.0	0.9	<0.1
JUL 10...	3	13	5.0	2.7	10	0.2	1.2	50	7.8	1.6	<0.1
SEP 04...	12	23	8.6	4.2	9	0.2	1.8	81	14	3.4	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV 15...	9.8	104	110	0.14	1150	0.57	0.17	0.7	0.02	0.01
JAN 16...	12	78	97	0.11	1110	0.52	0.11	0.4	0.05	0.04
MAR 20...	14	115	110	0.16	1730	0.12	0.04	0.9	0.09	0.08
MAY 28...	9.7	42	48	0.06	2280	<0.10	0.13	0.5	0.02	<0.01
JUL 10...	8.0	71	69	0.1	958	0.29	0.08	0.5	<0.01	<0.01
SEP 04...	11	110	110	0.15	1150	--	--	--	0.04	0.02

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 15...	0.02	<10	2	29	<0.5	2	<1	<3	4	12
JAN 16...	0.04	10	<1	24	<0.5	<1	0.6	<3	5	34
MAR 20...	0.04	--	--	--	--	--	--	--	--	--
MAY 28...	<0.01	<10	<1	20	<0.5	<1	7	<3	3	15
JUL 10...	<0.01	--	--	--	--	--	--	--	--	--
SEP 04...	0.03	<10	2	30	<0.5	1	<1	<3	5	<3

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)
NOV 15...	3	5	15	<0.1	<10	<1	<1	<1	67	<6
JAN 16...	20	<4	42	<0.1	<10	<1	<1	<1	54	<6
MAR 20...	--	--	--	--	--	--	--	--	--	--
MAY 28...	<1	<4	2	<0.1	<10	2	<1	1	25	<6
JUL 10...	--	--	--	--	--	--	--	--	--	--
SEP 04...	2	<4	4	<0.1	<10	<1	<1	<1	72	<6

DATE	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
NOV 15...	23	--	--	--	--	--	--	--	5	55
JAN 16...	54	--	--	--	--	--	--	--	4	57
MAR 20...	--	--	--	--	--	--	--	--	4	60
MAY 28...	53	<1.0	<0.5	0.8	0.7	<0.5	0.06	0.08	6	326
JUL 10...	--	--	--	--	--	--	--	--	3	41
SEP 04...	35	<1.5	0.9	2.3	1.7	<0.4	0.03	1.0	2	21

12433200 CHAMOKANE CREEK BELOW FALLS, NEAR LONG LAKE, WA

LOCATION.--Lat 47°51'42", long 117°51'28", in SE¼SW¼ sec.2, T.27 N., R. 39 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank 800 ft downstream from Chamokane Falls, 1.4 mi upstream from mouth, and 1.8 mi north of town of Long Lake.

DRAINAGE AREA.--179 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1971 to September 1978, April 1984 to current year (seasonal records only).

GAGE.--Water-stage recorder. Datum of gage is 1,418.5 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Apr. 30, May 12-15, 19-23, May 26 to June 4, Sept. 8-13, Oct. 25 to Nov. 1. Water-discharge records excellent. No known regulation. Diversions upstream for irrigation, domestic use, and fish hatchery.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,200 ft³/s Apr. 25, 1975, gage height, 5.06 ft, from rating curve extended above 500 ft³/s on basis of slope-area measurement of peak flow; minimum, 16 ft³/s July 10, 1973, gage height, 0.87 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period Apr. 30 to Nov. 1, 1985, 70 ft³/s Apr. 30, gage height, 1.52 ft; minimum, 24 ft³/s July 25, 26, 28-30, gage height, 1.16 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR APRIL 30 TO NOVEMBER 1, 1985
MEAN VALUES

DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	---	65	38	28	28	28	29	29
2	---	63	38	28	27	28	29	---
3	---	62	38	28	27	26	28	---
4	---	61	38	28	27	28	28	---
5	---	60	36	28	27	28	28	---
6	---	59	36	28	26	28	29	---
7	---	56	38	28	27	28	28	---
8	---	54	38	28	27	28	28	---
9	---	52	37	27	28	28	28	---
10	---	51	36	27	28	28	28	---
11	---	49	34	28	28	28	31	---
12	---	48	32	28	28	29	29	---
13	---	46	32	28	27	29	29	---
14	---	46	32	28	27	30	29	---
15	---	45	31	28	27	30	29	---
16	---	45	30	28	26	30	29	---
17	---	43	30	28	26	32	28	---
18	---	43	30	28	26	30	28	---
19	---	42	30	28	27	31	28	---
20	---	40	30	27	27	29	28	---
21	---	39	30	27	27	30	28	---
22	---	37	30	27	27	29	30	---
23	---	36	30	27	27	29	29	---
24	---	36	30	26	27	29	30	---
25	---	36	29	26	27	29	30	---
26	---	36	29	26	27	29	29	---
27	---	36	29	26	27	29	29	---
28	---	36	28	26	27	29	29	---
29	---	36	28	26	27	29	29	---
30	67	38	28	26	27	28	29	---
31	---	38	---	26	27	---	29	---
TOTAL	---	1434	975	846	838	868	892	---
MEAN	---	46.3	32.5	27.3	27.0	28.9	28.8	---
MAX	---	65	38	28	28	32	31	---
MIN	---	36	28	26	26	28	28	---
CFSM	---	.26	.18	.15	.15	.16	.16	---
IN.	---	.30	.20	.18	.17	.18	.19	---
AC-FT	---	2840	1930	1680	1660	1720	1770	---

12433200 CHAMOKANE CREEK BELOW FALLS, NEAR LONG LAKE, WA

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April 1984 to current year (seasonal records only).

INSTRUMENTATION.--Temperature recorder since April 1984.

REMARKS.--Seasonal records.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 23.5°C July 9, 1985; minimum, 3.0°C Nov. 1, 1984.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum during period May to Oct. 1985, 23.5°C July 9; minimum, 4.0°C Oct. 8.

TEMPERATURE, WATER (DEG. C), WATER YEAR MAY TO OCTOBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		MAY			JUNE			JULY			AUGUST	
1	16.5	---	---	---	---	---	15.5	10.5	12.0	19.5	10.0	16.5
2	16.0	10.0	13.0	---	---	---	22.5	11.0	16.5	17.5	13.5	15.5
3	12.5	8.5	11.0	---	---	---	23.0	12.0	17.0	21.0	12.0	16.0
4	12.5	7.0	9.5	---	---	---	22.0	12.0	17.0	18.5	12.0	15.0
5	14.0	6.0	10.0	14.5	11.0	12.5	22.0	12.5	16.5	20.5	12.5	16.0
6	15.5	8.0	11.5	13.0	10.0	11.5	21.5	11.0	16.0	20.5	11.0	15.5
7	16.0	9.5	12.5	14.5	11.0	12.5	22.5	12.0	17.0	18.0	11.5	14.5
8	14.5	10.0	11.5	[illegible]	10.0	13.5	23.0	12.5	17.5	15.5	12.0	13.5
9	17.0	7.0	11.5	18.5	9.0	13.5	23.5	13.0	18.0	14.5	10.0	12.5
10	15.0	8.0	11.0	19.5	9.0	14.0	23.0	13.5	18.0	15.5	11.0	13.0
11	13.0	7.0	10.0	20.5	9.5	15.0	21.0	12.0	16.5	18.5	10.0	14.0
12	15.5	6.0	10.5	20.0	11.0	15.0	22.0	12.0	16.5	17.0	11.0	14.0
13	15.0	6.5	11.0	17.5	11.0	14.0	21.5	11.5	16.5	19.0	10.0	14.0
14	15.0	10.0	12.0	18.0	11.5	14.5	22.0	11.5	16.5	19.5	10.5	14.5
15	19.0	8.0	13.0	20.5	11.0	15.0	22.0	11.5	16.5	18.5	11.5	14.5
16	19.5	10.0	14.5	20.0	9.5	14.5	22.0	11.5	16.5	19.5	10.0	14.5
17	20.0	9.5	14.5	21.0	9.5	15.0	21.5	12.5	16.5	19.5	10.0	14.5
18	20.5	10.0	15.0	22.0	10.5	16.0	22.0	12.0	16.5	19.5	10.0	14.5
19	20.5	10.5	15.0	21.5	11.5	16.0	22.5	11.5	16.5	17.5	11.5	14.5
20	20.0	10.5	15.0	20.5	11.0	15.5	22.5	11.5	17.0	15.5	11.5	13.5
21	20.5	10.5	15.0	21.0	10.0	15.5	22.5	12.0	17.0	18.5	11.5	14.0
22	21.0	10.5	15.5	20.5	10.5	15.0	21.0	12.5	16.5	18.5	10.0	14.0
23	21.5	11.5	16.0	19.5	9.5	14.0	21.0	12.5	16.5	19.0	10.0	14.0
24	19.5	13.0	16.0	17.5	8.5	13.0	22.0	12.0	16.5	18.5	11.0	14.5
25	19.0	10.5	14.5	19.5	9.0	14.0	22.0	12.0	16.5	20.0	12.5	15.5
26	---	10.5	---	20.5	10.0	15.0	21.5	11.5	15.5	18.5	11.0	14.5
27	---	---	---	20.5	10.5	15.0	20.5	11.0	16.0	18.0	11.0	14.0
28	---	---	---	21.0	11.0	16.0	21.5	11.0	16.0	19.0	12.5	15.0
29	---	---	---	21.0	11.0	15.5	22.0	12.0	16.5	19.0	10.0	14.0
30	---	---	---	21.0	11.5	16.0	22.0	13.0	17.0	18.0	10.5	14.0
31	---	---	---	---	---	---	20.5	13.0	17.0	17.5	10.0	13.5
MONTH	---	---	---	---	---	---	23.5	10.5	16.5	21.0	10.0	14.5

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12433200 CHAMOKANE CREEK BELOW FALLS, NEAR LONG LAKE, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR MAY TO OCTOBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
	SEPTEMBER			OCTOBER		
1	13.0	10.5	12.0	10.0	7.0	9.0
2	17.5	11.5	14.0	13.5	8.0	10.5
3	16.0	10.5	15.5	13.0	8.0	10.0
4	16.0	10.5	13.5	11.5	6.0	9.0
5	15.5	11.5	13.5	12.5	8.0	10.0
6	17.0	12.0	14.0	11.0	9.0	10.0
7	15.5	9.0	12.5	9.0	6.5	8.0
8	15.0	11.0	---	8.5	4.0	6.0
9	---	---	---	8.0	4.5	6.0
10	---	---	---	10.0	7.0	8.0
11	---	---	---	11.0	8.0	9.0
12	---	---	---	9.5	5.5	7.5
13	15.0	---	---	10.0	5.0	7.5
14	14.0	11.0	12.5	10.5	7.0	8.5
15	14.5	11.0	12.0	12.5	8.5	10.5
16	11.5	9.5	10.5	12.0	8.5	10.0
17	12.5	10.5	11.5	11.0	6.0	8.5
18	13.5	9.0	11.0	10.5	6.0	8.0
19	14.5	9.5	11.5	9.0	7.0	8.0
20	13.5	8.0	10.5	11.0	7.0	9.0
21	14.0	9.5	11.5	9.5	8.0	9.0
22	13.5	7.0	10.0	9.5	7.0	8.0
23	12.5	6.5	9.5	10.0	7.0	8.5
24	14.5	8.5	11.0	9.5	7.5	8.5
25	14.0	7.5	10.5	10.5	7.5	9.0
26	14.0	8.0	10.5	8.5	6.5	7.5
27	13.0	7.5	10.0	11.0	6.5	8.5
28	11.5	6.0	8.5	9.5	6.5	8.5
29	11.5	5.5	8.0	8.0	4.5	6.5
30	12.0	5.5	8.5	8.0	5.0	6.5
31	---	---	---	7.0	4.5	6.0
MONTH	---	---	---	13.5	4.0	8.5

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA

LOCATION.--Lat 47°55'28", long 118°0518", Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank, 2.4 mi downstream from Turtle Lake, and 5.4 mi northwest of Wellpinit.

DRAINAGE AREA.--6.0 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,070 ft, from topographic map.

REMARKS.--

JUNE TO SEPTEMBER 1984.--No estimated daily discharges. Water-discharge records good. No regulation or diversion upstream from station.

WATER YEAR 1985.--Estimated daily discharges: Oct. 21, 22, Dec. 1 to Mar. 18. Water-discharge records good except for estimated daily discharges, due to ice, which are fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8.1 ft³/s Apr. 10, 11, 1985, gage height, 1.73 ft; minimum, 0.09 ft³/s Aug. 20, 1985, gage height, 0.92 ft.

EXTREMES FOR CURRENT PERIOD.--

JUNE TO SEPTEMBER 1984.--Maximum discharge during period, 2.7 ft³/s June 21, gage height, 1.34 ft; minimum, 0.15 ft³/s several days during September, gage height, 0.96 ft.

WATER YEAR 1985.--Maximum discharge, 8.1 ft³/s Apr. 10, 11, gage height, 1.73 ft; minimum, 0.09 ft³/s Aug. 20, gage height, 0.92 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									---	1.2	.48	.19
2									---	1.1	.56	.19
3									---	.96	.48	.19
4									---	.83	.45	.19
5									---	.82	.45	.20
6									---	.79	.44	.23
7									---	.78	.42	.19
8									---	.75	.42	.28
9									---	.74	.41	.28
10									---	.72	.40	.27
11									---	.67	.40	.27
12									---	.61	.39	.28
13									---	.63	.38	.27
14									---	.60	.38	.26
15									---	.59	.37	.27
16									---	.58	.36	.27
17									1.5	.57	.36	.25
18									1.5	.54	.35	.23
19									1.4	.54	.34	.23
20									1.4	.53	.33	.29
21									2.1	.54	.33	.28
22									1.7	.56	.31	.24
23									1.6	.55	.31	.23
24									1.5	.54	.31	.21
25									1.4	.51	.31	.23
26									1.3	.50	.32	.22
27									1.3	.50	.23	.22
28									1.2	.49	.20	.22
29									1.2	.52	.20	.23
30									1.2	.50	.20	.23
31									---	.48	.20	---
TOTAL									---	20.24	11.09	7.14
MEAN									---	.65	.36	.24
MAX									---	1.2	.56	.29
MIN									---	.48	.20	.19
AC-FT									---	40	22	14

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.62	.37	.17	.13	.23	1.7	2.4	.96	.44	.24	.15
2	.22	.66	.32	.17	.12	.22	2.3	2.2	.98	.44	.22	.14
3	.22	.37	.30	.18	.11	.22	2.8	2.1	.94	.41	.21	.13
4	.23	.30	.31	.18	.11	.22	4.9	2.1	.92	.40	.21	.14
5	.21	.28	.30	.18	.12	.22	6.3	2.1	.89	.38	.21	.13
6	.17	.28	.31	.19	.13	.22	6.6	2.0	.92	.37	.20	.14
7	.17	.28	.31	.19	.14	.24	6.9	1.9	.89	.37	.19	.14
8	.18	.27	.31	.19	.15	.27	7.3	1.8	.80	.32	.21	.14
9	.19	.19	.30	.20	.16	.29	7.7	1.7	.78	.30	.21	.18
10	.17	.26	.29	.20	.17	.32	8.0	1.7	.74	.31	.20	.18
11	.24	.27	.29	.20	.18	.35	7.9	1.6	.73	.29	.19	.17
12	.21	.42	.29	.20	.18	.39	7.5	1.6	.71	.29	.17	.17
13	.19	.35	.28	.20	.18	.43	7.1	1.6	.70	.29	.16	.16
14	.19	.28	.27	.20	.18	.47	6.9	1.6	.68	.30	.16	.23
15	.19	.40	.26	.20	.18	.52	6.6	1.5	.66	.28	.16	.18
16	.19	.28	.23	.20	.18	.56	6.3	1.5	.64	.27	.16	.16
17	.19	.21	.18	.21	.17	.62	6.0	1.4	.64	.27	.15	.22
18	.19	.27	.15	.22	.17	.68	5.6	1.3	.62	.27	.15	.20
19	.19	.23	.13	.22	.18	.77	5.4	1.4	.60	.27	.14	.23
20	.19	.36	.15	.22	.18	.83	5.0	1.3	.59	.27	.12	.17
21	.24	.33	.19	.22	.18	1.0	4.7	1.3	.56	.25	.14	.17
22	.25	.28	.20	.22	.19	.90	4.4	1.2	.56	.24	.15	.16
23	.27	.29	.20	.21	.19	.89	4.4	1.2	.55	.24	.14	.15
24	.26	.30	.21	.21	.19	.92	3.9	1.2	.54	.24	.14	.15
25	.28	.24	.21	.21	.20	.92	3.6	1.1	.54	.24	.14	.15
26	.24	.23	.21	.21	.21	.93	3.5	1.1	.52	.24	.14	.15
27	.24	.97	.20	.21	.21	.96	3.2	1.1	.49	.23	.14	.16
28	.25	1.1	.19	.20	.22	.98	2.9	1.1	.49	.22	.14	.17
29	.23	.39	.19	.19	---	1.0	2.6	1.1	.47	.21	.15	.17
30	.24	.37	.18	.16	---	1.1	2.4	1.0	.46	.21	.12	.16
31	.55	---	.17	.15	---	1.3	---	.99	---	.21	.13	---
TOTAL	7.00	11.08	7.50	6.11	4.71	18.97	154.4	47.19	20.57	9.07	5.19	4.95
MEAN	.23	.37	.24	.20	.17	.61	5.15	1.52	.69	.29	.17	.16
MAX	.55	1.1	.37	.22	.22	1.3	8.0	2.4	.98	.44	.24	.23
MIN	.17	.19	.13	.15	.11	.22	1.7	.99	.46	.21	.12	.13
AC-FT	14	22	15	12	9.3	38	306	94	41	18	10	9.8

WTR YR 1985 TOTAL 296.74 MEAN .81 MAX 8.0 MIN .11 AC-FT 589

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1984 to current year.
pH: July 1984 to current year.
WATER TEMPERATURES: June 1984 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1984. Digital recorder set for one-hour-interval punch.

REMARKS.--Miscellaneous samples collected 1980.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 164 microsiemens Mar. 22, 1985; minimum, 86 microsiemens June 15, 1985.
pH: Maximum, 9.1 units, July 11, 13, 17, 1985; minimum, 6.9 units Aug. 28, 29, 1985.
WATER TEMPERATURES: Maximum, 23.0°C July 9, 1985; minimum, 0.0°C during many days from October to March 1985.

EXTREMES FOR CURRENT YEAR.--
JUNE TO SEPTEMBER 1984.--
SPECIFIC CONDUCTANCE: Maximum, 127 microsiemens July 29; minimum, 101 microsiemens June 20.
WATER TEMPERATURES: Maximum, 21.5°C July 27, 28, Aug. 2-4; minimum, 2.5°C Sept. 29.
JULY TO SEPTEMBER 1984.--
pH: Maximum, 8.0 units Aug. 17-27; minimum, 7.2 units Sept. 20, 22-24.

WATER YEAR 1985.--
SPECIFIC CONDUCTANCE: Maximum, 164 microsiemens Mar. 22; minimum, 86 microsiemens June 15.
pH: Maximum, 9.1 units July 11, 13, 17; minimum, 6.9 units Aug. 28, 29.
WATER TEMPERATURES: Maximum, 23.0°C July 9; minimum, 0.0°C during many days from October to March.

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	112	109	110	120	114	118	117	116	116
2	---	---	---	115	109	111	119	117	118	117	116	116
3	---	---	---	112	109	111	122	117	119	117	115	116
4	---	---	---	114	110	111	121	118	120	120	116	117
5	---	---	---	113	110	111	122	118	120	119	115	117
6	---	---	---	113	110	111	121	117	119	121	116	118
7	---	---	---	114	108	110	120	116	118	118	116	117
8	---	---	---	112	108	110	119	116	118	117	115	116
9	---	---	---	111	108	110	119	116	118	118	116	117
10	---	---	---	112	108	110	120	117	118	118	117	117
11	---	---	---	113	108	111	120	118	119	118	116	117
12	---	---	---	115	109	111	121	118	119	118	116	117
13	---	---	---	113	108	111	120	118	119	116	114	115
14	---	---	---	112	109	111	121	116	119	115	113	115
15	---	---	---	112	109	111	119	116	118	115	113	114
16	---	---	---	113	110	111	119	116	118	115	113	114
17	---	---	---	113	110	112	120	116	118	116	114	115
18	106	103	104	114	110	112	119	116	117	116	113	114
19	105	104	105	113	110	112	119	116	117	118	114	115
20	106	101	105	113	109	112	118	114	116	118	115	117
21	116	104	108	112	108	110	117	114	116	117	115	116
22	116	112	113	111	108	109	118	115	117	116	113	115
23	114	111	112	110	108	109	119	116	118	115	113	114
24	114	111	113	112	109	110	119	117	118	116	112	113
25	114	112	113	113	111	112	118	116	118	113	111	112
26	114	112	113	115	112	114	120	116	118	114	112	113
27	114	110	112	117	113	115	120	117	118	114	112	113
28	114	111	112	118	113	116	119	118	118	116	113	114
29	114	112	113	127	116	119	119	117	118	115	113	114
30	115	110	112	119	117	118	118	116	117	116	115	115
31	---	---	---	120	116	118	118	116	117	---	---	---
MONTH	---	---	---	127	108	112	122	114	118	121	111	115

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	116	114	115	136	129	134	137	129	133	131	129	130
2	116	112	114	128	119	122	144	137	141	131	129	130
3	117	113	115	123	121	122	155	145	150	135	132	133
4	115	113	114	123	121	122	162	150	155	136	133	134
5	115	114	115	124	121	122	161	150	155	139	136	138
6	116	113	114	124	123	123	153	144	148	137	135	136
7	116	113	114	126	122	124	145	140	142	137	134	135
8	117	115	116	126	122	125	139	135	136	136	134	135
9	117	116	117	126	124	125	135	132	133	135	131	134
10	120	117	118	126	122	124	133	130	131	131	130	130
11	122	119	120	125	121	124	130	129	130	131	129	130
12	122	120	121	123	119	120	130	129	129	130	129	130
13	124	121	123	124	119	122	130	129	129	131	130	131
14	123	122	122	125	120	123	131	130	130	134	131	132
15	123	122	122	131	122	127	131	129	130	133	131	132
16	123	121	122	128	127	127	131	129	130	132	131	132
17	125	122	123	130	127	129	131	129	130	133	131	132
18	128	122	124	130	126	128	133	129	131	133	131	132
19	132	123	127	130	127	129	133	131	132	132	131	132
20	126	122	124	129	123	125	134	131	133	134	130	132
21	132	124	128	133	129	131	134	132	133	132	131	132
22	136	128	130	134	131	132	133	130	131	132	131	131
23	132	129	130	134	126	131	130	128	129	132	130	131
24	130	128	129	133	126	131	130	129	130	133	132	132
25	130	128	129	134	132	132	130	129	130	133	132	133
26	128	125	127	134	130	132	130	129	130	133	132	133
27	126	122	125	135	132	134	131	129	130	134	133	133
28	125	124	125	133	125	129	130	128	129	134	131	132
29	126	123	125	130	126	128	129	127	128	133	131	132
30	126	125	126	130	126	128	129	128	128	136	131	134
31	134	125	130	---	---	---	129	127	128	140	137	139
MONTH	136	112	122	136	119	127	162	127	134	140	129	133

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	145	139	143	130	128	129	144	133	137	103	98	100
2	146	142	144	130	128	129	136	131	133	104	99	101
3	149	144	147	130	127	129	134	131	132	107	102	105
4	147	145	146	131	129	130	134	130	132	105	103	104
5	146	142	145	131	129	130	132	119	128	107	100	104
6	142	139	140	130	127	129	122	105	112	105	101	103
7	139	136	138	131	128	129	109	104	107	105	102	103
8	135	133	134	131	128	130	106	101	104	106	104	105
9	134	132	133	132	130	131	105	101	103	107	105	106
10	133	131	132	133	130	132	104	95	100	108	106	107
11	132	131	131	133	131	132	96	95	96	109	106	107
12	132	130	131	136	130	133	95	94	94	110	107	108
13	131	129	130	134	131	133	95	94	95	111	108	109
14	141	131	132	135	131	133	97	95	96	118	109	110
15	131	129	130	134	130	133	98	96	97	113	111	112
16	130	128	129	134	129	133	97	96	97	115	112	113
17	130	129	130	135	129	133	98	96	97	115	113	114
18	130	128	129	137	132	134	99	97	98	116	113	115
19	130	129	129	139	128	135	100	98	99	117	115	116
20	130	128	129	136	129	134	99	97	98	117	115	116
21	130	127	129	147	127	139	100	98	99	116	114	115
22	129	126	127	164	147	155	100	99	99	115	112	113
23	128	126	127	163	146	154	100	99	100	114	112	113
24	127	126	127	148	144	146	99	98	99	113	111	112
25	127	125	126	153	144	146	99	98	99	112	110	111
26	127	125	126	146	144	145	100	98	99	111	110	110
27	128	126	127	145	142	143	101	99	100	110	108	109
28	130	127	128	143	139	142	101	99	99	111	107	108
29	---	---	---	142	139	141	100	98	99	109	105	107
30	---	---	---	141	138	139	101	97	99	105	104	105
31	---	---	---	140	136	139	---	---	---	106	104	105
MONTH	149	125	133	164	127	136	144	94	105	118	98	109

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	107	103	104	113	110	112	121	117	118	129	124	126
2	106	103	104	114	110	113	120	116	118	127	125	126
3	107	101	103	119	111	115	121	118	119	127	124	125
4	104	101	102	118	114	116	121	117	119	126	124	125
5	104	102	103	119	115	117	121	118	119	127	125	126
6	102	99	101	120	115	117	120	118	119	127	125	126
7	100	95	97	119	113	117	122	118	119	127	124	126
8	100	94	96	124	115	119	120	117	118	126	123	125
9	100	96	98	124	119	122	119	117	118	125	123	124
10	99	95	97	122	119	120	119	116	117	127	123	125
11	96	93	95	120	116	118	120	117	118	126	123	125
12	99	93	95	120	115	117	122	118	119	128	124	127
13	100	88	92	119	112	114	124	118	120	128	126	127
14	91	87	88	120	113	116	122	119	121	134	110	127
15	93	86	90	119	114	117	123	120	121	139	135	137
16	101	90	96	121	113	116	123	121	122	136	134	135
17	100	92	95	124	116	120	125	122	124	136	129	132
18	96	89	91	126	118	122	125	123	124	133	125	131
19	97	90	92	124	116	119	126	122	124	131	124	128
20	107	95	102	118	114	116	128	125	126	131	128	130
21	116	102	107	116	111	113	129	125	127	133	129	130
22	124	110	115	115	112	113	129	126	127	132	129	131
23	125	118	121	123	114	116	128	125	127	131	127	130
24	121	112	116	117	115	116	139	125	128	133	129	131
25	112	108	110	121	116	118	130	127	128	132	127	130
26	113	110	112	120	114	116	129	127	128	131	128	130
27	114	109	112	116	113	115	133	128	130	131	128	130
28	111	109	110	117	114	116	139	129	131	131	129	130
29	113	109	111	117	113	115	131	127	128	133	128	129
30	112	110	111	118	115	116	129	127	128	129	127	128
31	---	---	---	119	115	117	129	126	128	---	---	---
MONTH	125	86	102	126	110	117	139	116	123	139	110	128
YEAR	164	86	122									

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1				---	---	---	7.6	7.4	7.6	7.9	7.5	7.7
2				---	---	---	7.6	7.5	7.5	7.8	7.5	7.7
3				---	---	---	7.7	7.5	7.6	7.8	7.5	7.6
4				7.7	7.5	7.6	7.7	7.6	7.6	7.8	7.5	7.6
5				7.8	7.6	7.7	7.8	7.6	7.6	7.8	7.4	7.6
6				7.8	7.7	7.7	7.8	7.6	7.7	7.7	7.4	7.6
7				7.8	7.7	7.7	7.8	7.6	7.7	7.7	7.4	7.6
8				7.8	7.7	7.7	7.8	7.6	7.7	7.7	7.4	7.5
9				7.8	7.7	7.7	7.8	7.6	7.7	7.7	7.5	7.6
10				7.8	7.6	7.7	7.8	7.6	7.7	7.7	7.4	7.5
11				7.8	7.6	7.7	7.8	7.6	7.7	7.7	7.4	7.5
12				7.8	7.6	7.7	7.9	7.6	7.7	7.7	7.3	7.5
13				7.7	7.6	7.7	7.9	7.6	7.7	7.7	7.4	7.5
14				7.7	7.6	7.6	7.9	7.6	7.7	7.7	7.4	7.5
15				7.7	7.6	7.6	7.9	7.7	7.7	7.7	7.3	7.5
16				7.7	7.6	7.6	7.9	7.7	7.8	7.6	7.4	7.5
17				7.7	7.6	7.6	8.0	7.7	7.8	7.6	7.3	7.4
18				7.8	7.6	7.7	8.0	7.7	7.8	7.6	7.3	7.4
19				7.8	7.6	7.7	8.0	7.7	7.8	7.6	7.3	7.5
20				7.8	7.5	7.7	8.0	7.7	7.8	7.5	7.2	7.4
21				7.8	7.5	7.7	8.0	7.7	7.8	7.5	7.3	7.4
22				7.8	7.5	7.7	8.0	7.7	7.8	7.5	7.2	7.4
23				7.8	7.5	7.6	8.0	7.7	7.8	7.5	7.2	7.4
24				7.7	7.4	7.5	8.0	7.7	7.8	7.6	7.2	7.4
25				7.6	7.5	7.5	8.0	7.7	7.8	7.5	7.3	7.4
26				7.6	7.5	7.6	8.0	7.7	7.8	7.5	7.3	7.4
27				7.7	7.5	7.6	8.0	7.7	7.8	7.5	7.4	7.5
28				7.7	7.4	7.6	7.9	7.6	7.7	7.5	7.3	7.4
29				7.6	7.4	7.5	7.8	7.5	7.7	7.6	7.3	7.4
30				7.6	7.5	7.6	7.9	7.6	7.7	7.6	7.3	7.5
31				7.7	7.5	7.6	7.8	7.5	7.7	---	---	---
MONTH				---	---	---	8.0	7.4	7.7	7.9	7.2	7.5

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.6	7.3	7.5	7.3	7.3	7.3	7.6	7.5	7.6	7.4	7.4	7.4
2	7.6	7.3	7.5	7.3	7.3	7.3	7.6	7.5	7.5	7.4	7.3	7.3
3	7.6	7.3	7.5	7.4	7.3	7.4	7.4	7.2	7.3	7.4	7.3	7.3
4	7.6	7.4	7.5	7.4	7.3	7.4	7.3	7.2	7.2	7.3	7.2	7.3
5	7.5	7.4	7.5	7.4	7.4	7.4	7.2	7.1	7.2	7.4	7.2	7.3
6	7.6	7.3	7.4	7.5	7.3	7.4	7.2	7.1	7.2	7.4	7.3	7.3
7	7.6	7.4	7.5	7.6	7.3	7.4	7.2	7.1	7.2	7.4	7.3	7.3
8	7.6	7.4	7.4	7.5	7.4	7.4	7.2	7.2	7.2	7.3	7.3	7.3
9	7.5	7.3	7.4	7.5	7.3	7.4	7.3	7.2	7.3	7.3	7.3	7.3
10	7.6	7.3	7.4	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.3	7.3
11	7.5	7.3	7.3	7.5	7.3	7.4	7.4	7.3	7.4	7.3	7.3	7.3
12	7.5	7.3	7.4	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.3	7.3
13	7.6	7.3	7.5	7.4	7.3	7.3	7.4	7.3	7.4	7.3	7.3	7.3
14	7.5	7.3	7.4	7.5	7.3	7.4	7.5	7.4	7.4	7.3	7.3	7.3
15	7.6	7.3	7.4	7.4	7.3	7.3	7.5	7.5	7.5	7.3	7.3	7.3
16	7.5	7.3	7.4	7.5	7.3	7.4	7.5	7.5	7.5	7.3	7.3	7.3
17	7.6	7.4	7.5	7.5	7.3	7.4	7.5	7.5	7.5	7.3	7.2	7.3
18	7.5	7.4	7.4	7.5	7.3	7.4	7.6	7.5	7.5	7.3	7.2	7.2
19	7.6	7.4	7.4	7.5	7.3	7.4	7.5	7.5	7.5	7.3	7.2	7.2
20	7.5	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.5	7.2	7.1	7.2
21	7.4	7.3	7.4	7.6	7.4	7.5	7.5	7.4	7.5	7.2	7.1	7.2
22	7.5	7.3	7.4	7.6	7.4	7.5	7.5	7.4	7.4	7.2	7.1	7.2
23	7.4	7.3	7.4	7.6	7.4	7.5	7.5	7.4	7.5	7.2	7.2	7.2
24	7.5	7.3	7.4	7.6	7.5	7.5	7.5	7.4	7.4	7.2	7.2	7.2
25	7.4	7.3	7.4	7.6	7.4	7.5	7.4	7.4	7.4	7.2	7.2	7.2
26	7.5	7.3	7.4	7.6	7.5	7.5	7.4	7.4	7.4	7.2	7.2	7.2
27	7.5	7.3	7.4	7.6	7.4	7.5	7.4	7.4	7.4	7.2	7.2	7.2
28	7.5	7.3	7.4	7.6	7.5	7.5	7.4	7.4	7.4	7.2	7.1	7.2
29	7.5	7.4	7.4	7.7	7.5	7.6	7.4	7.4	7.4	7.2	7.2	7.2
30	7.5	7.4	7.4	7.7	7.6	7.6	7.4	7.4	7.4	7.3	7.2	7.2
31	7.4	7.3	7.3	---	---	---	7.4	7.4	7.4	7.2	7.2	7.2
MONTH	7.6	7.3	7.4	7.7	7.3	7.4	7.6	7.1	7.4	7.4	7.1	7.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.2	7.2	7.2	7.5	7.4	7.4	7.9	7.8	7.9	7.7	7.4	7.6
2	7.2	7.1	7.1	7.5	7.4	7.5	7.9	7.8	7.9	7.7	7.3	7.5
3	7.1	7.1	7.1	7.5	7.4	7.5	7.9	7.6	7.8	7.5	7.3	7.5
4	7.1	7.0	7.1	7.5	7.4	7.5	7.6	7.5	7.6	7.6	7.4	7.5
5	7.1	7.0	7.0	7.5	7.5	7.5	7.6	7.5	7.6	7.9	7.5	7.7
6	7.1	7.0	7.0	7.6	7.5	7.5	7.5	7.4	7.4	8.0	7.7	7.9
7	7.1	7.0	7.0	7.6	7.5	7.6	7.5	7.3	7.4	7.9	7.7	7.8
8	7.1	7.1	7.1	7.6	7.5	7.6	7.5	7.3	7.4	7.9	7.7	7.8
9	7.2	7.0	7.1	7.6	7.5	7.6	7.5	7.4	7.5	8.0	7.7	7.8
10	7.1	7.1	7.1	7.6	7.5	7.6	7.8	7.5	7.6	7.9	7.7	7.8
11	7.2	7.1	7.1	7.7	7.6	7.6	7.6	7.4	7.5	7.9	7.7	7.8
12	7.1	7.1	7.1	7.7	7.6	7.7	7.5	7.4	7.4	8.0	7.8	7.9
13	7.2	7.1	7.1	7.7	7.6	7.7	7.4	7.3	7.4	8.0	7.8	7.9
14	7.2	7.2	7.2	7.7	7.7	7.7	7.4	7.3	7.3	8.0	7.9	7.9
15	7.2	7.2	7.2	7.7	7.7	7.7	7.4	7.3	7.3	8.0	7.9	8.0
16	7.2	7.1	7.2	7.7	7.7	7.7	7.3	7.2	7.3	8.1	7.9	8.0
17	7.3	7.1	7.2	7.8	7.7	7.7	7.3	7.3	7.3	8.1	7.8	8.0
18	7.3	7.2	7.2	7.8	7.7	7.8	7.3	7.2	7.3	8.0	7.8	7.9
19	7.3	7.2	7.3	7.9	7.8	7.8	7.3	7.2	7.3	8.0	7.7	7.9
20	7.3	7.2	7.2	7.9	7.8	7.9	7.3	7.2	7.3	7.8	7.7	7.8
21	7.3	7.1	7.2	8.0	7.8	7.9	7.3	7.2	7.3	7.9	7.9	7.9
22	7.3	7.2	7.3	7.9	7.9	7.9	7.3	7.3	7.3	7.9	7.8	7.9
23	7.3	7.2	7.3	7.9	7.9	7.9	7.4	7.3	7.4	7.8	7.8	7.8
24	7.3	7.2	7.3	7.9	7.9	7.9	7.4	7.3	7.4	7.8	7.8	7.8
25	7.4	7.3	7.3	7.9	7.9	7.9	7.5	7.4	7.4	7.8	7.7	7.8
26	7.4	7.3	7.4	7.9	7.9	7.9	7.5	7.4	7.4	7.8	7.7	7.8
27	7.4	7.3	7.4	7.9	7.9	7.9	7.5	7.4	7.4	7.8	7.8	7.8
28	7.4	7.4	7.4	7.9	7.9	7.9	7.6	7.4	7.5	7.9	7.8	7.8
29	---	---	---	7.9	7.8	7.9	7.6	7.1	7.6	7.9	7.8	7.9
30	---	---	---	7.9	7.9	7.9	7.7	7.4	7.5	7.9	7.8	7.9
31	---	---	---	7.9	7.9	7.9	---	---	---	7.9	7.8	7.9
MONTH	7.4	7.0	7.2	8.0	7.4	7.7	7.9	7.1	7.5	8.1	7.3	7.8

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	7.8	7.8	8.4	7.8	7.9	8.4	7.6	7.8	8.2	7.9	8.0
2	7.9	7.8	7.9	8.7	7.7	8.0	8.7	7.6	7.9	8.3	7.9	8.0
3	7.9	7.9	7.9	8.8	7.6	8.0	8.6	7.6	7.9	8.3	7.9	8.0
4	8.0	7.9	7.9	8.9	7.7	8.0	8.6	7.6	7.8	8.3	7.9	8.0
5	8.0	7.9	8.0	9.0	7.6	8.0	8.7	7.6	7.9	8.3	7.8	8.0
6	8.0	8.0	8.0	9.0	7.6	8.0	8.5	7.6	7.8	8.4	7.8	8.0
7	8.0	8.0	8.0	8.8	7.6	8.0	8.4	7.6	7.8	8.3	7.8	8.0
8	8.0	7.9	8.0	8.8	7.6	8.0	8.6	7.5	7.8	8.5	7.7	8.0
9	7.9	7.9	7.9	8.9	7.6	8.0	8.5	7.5	7.7	8.1	7.8	7.8
10	8.0	7.9	7.9	9.0	7.5	8.0	8.4	7.5	7.7	8.4	7.8	7.9
11	7.9	7.9	7.9	9.1	7.5	8.0	8.5	7.5	7.7	8.1	7.8	7.8
12	7.9	7.9	7.9	9.0	7.5	7.9	8.7	7.4	7.7	8.2	7.8	7.9
13	7.9	7.9	7.9	9.1	7.5	8.0	8.6	7.4	7.7	8.5	7.8	7.9
14	7.9	7.9	7.9	9.0	7.5	7.9	8.7	7.3	7.7	8.4	7.7	7.8
15	7.9	7.9	7.9	8.9	7.4	7.9	8.8	7.3	7.7	8.3	7.7	7.9
16	7.9	7.8	7.9	9.0	7.4	7.9	8.5	7.2	7.6	8.3	7.8	7.9
17	7.9	7.8	7.9	9.1	7.5	7.9	8.7	7.2	7.6	8.2	7.8	7.9
18	7.9	7.8	7.8	9.0	7.4	7.9	8.7	7.2	7.5	8.6	7.7	8.0
19	7.8	7.8	7.8	8.9	7.4	7.9	8.5	7.1	7.4	8.6	7.7	7.9
20	7.8	7.8	7.8	8.9	7.4	7.8	7.7	7.1	7.2	8.7	7.7	7.9
21	7.8	7.8	7.8	9.0	7.4	7.8	8.3	7.1	7.4	8.7	7.7	7.9
22	7.8	7.8	7.8	8.3	7.3	7.8	8.1	7.1	7.3	8.6	7.8	7.9
23	7.8	7.8	7.8	8.2	7.5	7.8	8.3	7.1	7.4	8.5	7.7	7.9
24	8.0	7.8	7.9	8.0	7.3	7.5	8.3	7.1	7.4	8.5	7.7	7.9
25	8.0	7.9	7.9	8.1	7.1	7.5	8.4	7.0	7.4	8.3	7.8	7.9
26	8.1	7.9	7.9	8.2	7.8	7.9	8.6	7.0	7.3	8.4	7.8	7.9
27	8.1	7.9	7.9	8.2	7.7	7.8	7.8	7.0	7.2	8.5	7.8	7.9
28	8.1	7.9	7.9	8.3	7.7	7.9	8.2	6.9	7.1	8.4	7.7	7.9
29	8.1	7.8	7.9	8.3	7.6	7.8	8.2	6.9	7.5	8.4	7.7	7.9
30	8.3	7.8	8.0	8.4	7.7	7.9	8.2	7.8	7.9	8.3	7.7	7.9
31	---	---	---	8.5	7.6	7.9	8.2	7.8	8.0	---	---	---
MONTH	8.3	7.8	7.9	9.1	7.1	7.9	8.8	6.9	7.6	8.7	7.7	7.9
YEAR	9.1	6.9	7.6									

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	14.5	11.5	13.0	20.5	16.0	18.5	14.0	9.5	11.5
2	---	---	---	16.0	11.5	13.5	21.5	17.5	19.0	14.0	8.5	11.0
3	---	---	---	16.5	12.5	14.5	21.5	17.0	19.0	15.5	10.0	12.5
4	---	---	---	17.5	12.5	15.0	21.5	16.5	19.0	15.5	10.0	13.0
5	---	---	---	17.5	14.0	16.0	21.0	17.0	19.0	16.0	11.5	13.5
6	---	---	---	16.5	12.0	14.0	19.0	15.0	17.0	13.5	10.5	12.0
7	---	---	---	16.0	11.0	13.5	19.0	13.0	16.0	12.5	7.5	10.0
8	---	---	---	16.5	11.5	14.0	20.0	14.0	17.0	15.5	11.5	13.0
9	---	---	---	17.0	12.0	14.5	21.0	15.0	18.0	14.5	9.5	12.0
10	---	---	---	17.5	12.5	15.0	20.5	16.5	18.5	13.0	8.5	11.0
11	---	---	---	17.5	13.0	15.5	21.0	15.5	18.0	11.5	9.0	10.0
12	---	---	---	17.0	12.5	15.0	21.0	16.5	18.5	11.5	7.0	9.0
13	---	---	---	17.0	12.0	14.5	18.5	14.0	16.0	12.0	6.5	9.0
14	---	---	---	17.5	12.5	15.0	18.0	12.0	15.0	11.5	6.0	8.5
15	---	---	---	18.5	13.0	16.0	18.0	12.5	15.5	12.0	7.5	10.0
16	---	---	---	19.5	14.0	16.5	19.0	13.0	16.0	12.5	7.5	10.0
17	15.5	---	---	20.0	15.0	17.5	19.5	14.5	17.0	13.5	8.5	11.0
18	15.0	10.5	13.0	19.5	14.0	16.5	19.0	15.0	16.5	14.0	9.5	11.5
19	15.0	11.0	13.0	18.5	13.5	16.0	17.0	11.5	14.5	14.0	9.5	12.0
20	14.5	11.5	13.0	17.5	12.5	15.0	17.0	11.0	14.0	13.5	11.5	12.5
21	13.0	10.5	11.5	16.5	11.5	14.0	17.0	11.0	14.0	11.5	8.5	10.0
22	11.5	10.5	11.0	17.0	11.0	14.0	17.5	12.0	15.0	9.0	7.5	8.5
23	14.5	9.5	12.0	17.5	12.5	15.0	17.5	13.0	15.0	9.0	7.0	8.0
24	16.0	11.5	14.0	18.5	13.5	16.0	16.5	11.5	14.0	8.0	4.5	6.0
25	17.0	13.0	15.0	20.5	15.0	17.5	17.0	11.0	14.0	8.5	4.5	6.5
26	16.5	13.0	15.0	21.0	16.5	18.5	17.0	12.0	14.5	9.0	6.5	8.0
27	16.5	13.0	14.5	21.5	17.0	19.0	16.5	12.0	14.0	8.0	4.5	6.0
28	17.5	13.5	15.5	21.5	16.5	19.0	13.5	9.5	11.5	6.5	3.0	4.5
29	16.0	12.5	15.0	20.0	18.0	18.5	14.0	8.5	11.5	6.5	2.5	4.5
30	14.5	10.5	12.5	20.5	16.5	18.5	14.0	9.0	11.5	7.5	3.5	5.5
31	---	---	---	21.0	16.0	18.5	14.5	11.5	12.5	---	---	---
MONTH	---	---	---	21.5	11.0	16.0	21.5	8.5	16.0	16.0	2.5	9.5

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.5	4.0	6.0	.0	.0	.0	.5	.0	.0	.0	.0	.0
2	8.5	4.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
3	9.0	5.0	7.0	2.0	.0	1.0	.0	.0	.0	.0	.0	.0
4	9.5	6.0	7.5	2.5	.5	1.5	.0	.0	.0	.0	.0	.0
5	7.5	4.5	6.0	1.5	.0	1.0	.0	.0	.0	.0	.0	.0
6	8.5	5.5	7.0	2.5	1.0	2.0	.0	.0	.0	.0	.0	.0
7	9.5	6.0	8.0	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
8	10.0	6.5	8.0	2.0	.0	1.0	.0	.0	.0	.0	.0	.0
9	10.0	7.5	8.5	2.5	1.0	1.5	.0	.0	.0	.0	.0	.0
10	11.0	8.5	9.5	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
11	10.0	8.5	9.5	3.0	1.5	2.5	.0	.0	.0	.0	.0	.0
12	8.0	6.0	7.0	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
13	7.5	5.0	6.0	4.5	3.5	4.0	.0	.0	.0	.0	.0	.0
14	6.0	3.0	4.5	3.5	.5	1.5	.0	.0	.0	.0	.0	.0
15	5.0	3.0	4.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
16	5.5	3.5	4.5	1.0	.0	.5	.0	.0	.0	.0	.0	.0
17	3.5	1.5	2.5	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
18	2.5	.5	1.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
19	2.0	.0	1.0	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
20	1.5	.0	1.0	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
21	.5	.0	.0	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
22	.5	.0	.0	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
23	.5	.0	.0	2.0	.5	1.5	.0	.0	.0	.0	.0	.0
24	2.5	.5	1.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
25	4.5	2.5	3.5	1.5	1.0	1.5	.0	.0	.0	.0	.0	.0
26	3.5	1.5	3.0	1.0	.5	1.0	.0	.0	.0	.0	.0	.0
27	2.0	.0	1.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
28	3.5	2.0	2.5	.0	.0	.0	.5	.0	.0	.0	.0	.0
29	1.5	.5	1.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
30	2.5	.5	1.5	.5	.0	.5	.5	.0	.5	.0	.0	.0
31	1.0	.0	.0	---	---	---	.5	.0	.0	.0	.0	.0
MONTH	11.0	.0	4.0	4.5	.0	1.5	.5	.0	.0	.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.5	.0	.5	5.0	3.0	3.5	12.5	7.0	10.0
2	.0	.0	.0	.5	.0	.5	5.0	3.5	4.0	12.5	8.5	11.0
3	.0	.0	.0	.5	.0	.0	6.0	4.0	5.0	12.0	8.5	9.5
4	.0	.0	.0	.5	.0	.5	6.0	3.5	5.0	9.0	5.5	7.0
5	.0	.0	.0	.5	.0	.5	8.0	5.0	6.0	10.0	5.0	7.5
6	.0	.0	.0	.5	.0	.5	8.5	6.0	7.0	11.5	7.0	9.5
7	.0	.0	.0	.5	.0	.5	9.5	7.0	8.0	12.0	8.5	10.0
8	.0	.0	.0	.5	.0	.5	11.0	7.5	9.0	11.0	8.5	10.0
9	.0	.0	.0	.5	.0	.5	11.0	8.5	9.5	12.0	6.5	9.5
10	.0	.0	.0	1.0	.0	.5	11.0	8.5	9.5	10.5	7.0	9.0
11	.0	.0	.0	1.0	.5	.5	8.0	6.5	7.0	9.5	6.5	8.0
12	.0	.0	.0	1.0	.5	.5	8.0	6.0	6.5	10.5	5.0	8.0
13	.0	.0	.0	1.0	.5	.5	8.0	6.5	7.0	11.0	6.0	9.0
14	.0	.0	.0	1.0	.5	.5	9.0	7.0	8.0	11.0	9.5	10.0
15	.0	.0	.0	1.5	.5	.5	9.0	7.5	8.0	14.5	7.5	11.0
16	.0	.0	.0	1.5	.5	.5	8.5	8.0	8.0	15.5	10.0	13.0
17	.0	.0	.0	1.5	.5	1.0	8.5	6.5	7.5	16.5	10.5	13.5
18	.0	.0	.0	1.5	.0	.5	8.5	7.5	8.0	17.0	11.5	14.0
19	.0	.0	.0	2.0	.0	.5	8.0	7.0	7.5	17.0	12.0	14.5
20	.0	.0	.0	2.0	.5	1.0	7.0	5.0	6.0	16.5	11.5	14.0
21	.0	.0	.0	2.0	.5	1.0	8.0	4.5	6.0	17.0	12.0	14.5
22	.0	.0	.0	1.5	.5	1.0	8.5	5.5	7.0	17.5	12.5	15.0
23	.0	.0	.0	2.0	1.0	1.5	8.0	6.5	7.0	18.5	13.5	16.0
24	.0	.0	.0	2.5	1.0	2.0	8.5	4.5	6.5	17.0	15.0	16.0
25	.0	.0	.0	3.0	.5	1.5	9.0	5.0	7.0	16.0	12.0	14.0
26	.0	.0	.0	2.5	.5	1.5	7.5	5.0	6.0	17.0	12.0	14.5
27	.0	.0	.0	2.0	1.0	1.5	9.5	7.0	8.0	16.0	13.0	14.5
28	.0	.0	.0	3.5	1.0	2.0	11.0	8.0	9.5	15.0	13.0	14.0
29	---	---	---	3.5	1.0	2.0	11.0	6.5	8.5	13.5	11.5	12.5
30	---	---	---	2.5	1.0	2.0	11.5	5.5	8.5	12.5	11.0	12.0
31	---	---	---	4.5	1.5	2.5	---	---	---	15.0	10.0	12.5
MONTH	.0	.0	.0	4.5	.0	1.0	11.5	3.0	7.0	18.5	5.0	11.5

BEST COPY AVAILABLE

12433542 BLUE CREEK ABOVE MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.0	12.0	13.5	18.5	13.0	16.0	18.5	16.0	17.5	13.0	10.0	11.5
2	13.5	12.0	12.5	20.0	13.5	17.0	19.5	16.0	17.5	15.5	11.0	13.0
3	15.0	10.0	12.5	21.0	14.5	17.5	19.5	14.5	17.0	15.0	10.5	13.0
4	16.0	13.0	14.5	21.0	15.5	18.0	18.5	14.0	16.5	15.5	10.5	13.0
5	13.5	12.0	13.0	20.5	15.5	17.5	19.5	14.0	16.5	14.0	11.0	12.5
6	12.0	11.0	11.5	20.0	14.0	17.0	19.0	12.5	15.5	14.5	11.0	13.0
7	13.0	11.5	12.0	21.0	14.5	17.5	17.0	13.5	15.0	13.0	8.5	11.0
8	14.5	10.0	12.5	21.5	15.5	18.5	15.5	13.0	14.5	13.0	10.5	12.0
9	15.0	10.5	12.5	23.0	16.5	19.5	14.5	11.5	13.5	12.5	11.5	12.0
10	15.5	10.5	13.0	22.5	17.0	19.5	15.0	12.0	13.5	14.0	11.5	12.5
11	17.0	11.0	14.0	21.0	15.5	18.0	16.5	10.5	14.0	12.5	11.0	12.0
12	17.5	13.0	15.5	20.5	15.0	17.5	16.0	12.0	14.0	13.0	11.0	12.0
13	16.5	13.5	15.0	20.5	14.0	17.0	16.5	10.5	13.5	13.0	10.0	11.0
14	16.5	13.5	15.0	20.5	14.0	17.0	17.5	11.0	14.0	12.5	9.0	11.0
15	17.5	13.0	15.0	21.0	14.5	17.5	17.5	12.0	14.5	12.5	10.0	11.0
16	17.0	12.0	14.5	20.5	14.5	17.5	17.0	10.5	13.5	11.0	9.0	10.0
17	17.5	12.0	14.5	20.5	15.0	18.0	17.5	10.5	14.0	11.0	10.0	10.5
18	19.0	13.5	16.0	21.0	15.5	18.0	17.5	11.0	14.0	11.5	8.5	10.0
19	19.5	14.5	17.0	21.0	14.5	17.5	16.5	12.5	14.5	11.5	8.0	9.5
20	18.5	14.5	16.5	21.0	15.0	18.0	14.5	12.0	13.0	10.5	7.0	9.0
21	18.5	13.0	16.0	21.0	15.0	18.0	16.0	11.5	13.5	11.0	8.0	9.5
22	18.0	13.0	15.5	20.5	15.5	18.0	16.0	10.0	13.0	9.5	6.0	7.5
23	16.5	12.0	14.5	21.0	15.5	18.0	16.5	10.0	13.0	9.5	5.0	7.5
24	14.5	10.5	13.0	20.5	15.0	17.5	16.0	11.5	14.0	10.5	6.5	8.5
25	16.0	10.5	13.5	20.5	14.5	17.5	18.5	13.0	15.5	10.0	6.5	8.0
26	17.0	11.5	14.5	20.5	14.0	17.0	17.5	11.5	14.5	10.5	7.0	8.5
27	17.5	12.5	15.0	19.5	13.5	16.5	16.0	11.5	13.5	9.5	6.0	7.5
28	18.0	13.0	15.5	20.5	13.5	17.0	17.0	12.0	14.5	7.5	4.5	5.5
29	18.5	13.5	16.0	21.0	14.5	17.5	16.5	10.5	13.5	7.0	3.0	5.0
30	18.5	13.5	16.0	21.5	16.0	18.5	15.5	11.0	13.0	7.5	3.0	5.0
31	---	---	---	20.0	15.5	18.0	14.5	9.5	12.0	---	---	---
MONTH	19.5	10.0	14.5	23.0	13.0	17.5	19.5	9.5	14.5	15.5	3.0	10.0
YEAR	23.0	.0	7.0									

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA

LOCATION.--Lat 47°55'27", long 118°05'20", Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank, 2.4 mi downstream from Turtle Lake, .13 mi upstream from confluence with Blue Creek, and 5.4 mi northwest of Wellpinit

DRAINAGE AREA.--1.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,070 ft, from topographic map.

REMARKS.--

JUNE TO SEPTEMBER 1984.--No estimated daily discharges. Water-discharge records good. Three mine waste-retention ponds upstream from gage.

WATER YEAR 1985.--Estimated daily discharges: Nov. 27 to Feb. 26. Water-discharge records good except for estimated daily discharges, due to ice, which are fair. Three mine waste-retention ponds upstream from gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5.7 ft³/s June 21, 1984, gage height, 1.64 ft; minimum, 0.06 ft³/s during several days in August, September 1984, several days in July, August, September 1985.

EXTREMES FOR CURRENT PERIOD.--

JUNE TO SEPTEMBER 1984.--Maximum discharge during period, 5.7 ft³/s June 21, gage height, 1.64 ft; minimum, 0.06 ft³/s during several days in August, September.

WATER YEAR 1985.--Maximum discharge, 1.1 ft³/s Mar. 30, Apr. 1, gage height, 1.26 ft; minimum, 0.06 ft³/s several days in July, August, September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									---	.30	.17	.10
2									---	.28	.19	.10
3									---	.25	.15	.10
4									---	.26	.15	.09
5									---	.21	.14	.09
6									---	.20	.14	.11
7									---	.19	.13	.09
8									---	.22	.13	.13
9									---	.24	.13	.13
10									---	.23	.12	.13
11									---	.27	.11	.15
12									---	.23	.11	.14
13									---	.23	.11	.14
14									---	.20	.11	.13
15									---	.20	.11	.13
16									.49	.20	.11	.13
17									.44	.19	.10	.13
18									.39	.18	.10	.13
19									.39	.19	.11	.12
20									.42	.19	.11	.15
21									1.8	.19	.10	.13
22									.52	.19	.09	.17
23									.45	.18	.09	.15
24									.54	.18	.09	.15
25									.39	.18	.09	.15
26									.34	.18	.09	.14
27									.33	.19	.09	.13
28									.32	.19	.08	.13
29									.32	.17	.08	.14
30									.30	.17	.10	.14
31									---	.15	.10	---
TOTAL									---	6.43	3.53	3.85
MEAN									---	.21	.11	.13
MAX									---	.30	.19	.17
MIN									---	.15	.08	.09
AC-FT									---	13	7.0	7.6

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12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.23	.23	.20	.19	.21	.93	.35	.26	.18	.12	.08
2	.12	.49	.23	.20	.18	.22	.82	.35	.28	.18	.12	.09
3	.13	.21	.23	.21	.17	.24	.84	.35	.25	.18	.11	.08
4	.12	.16	.23	.21	.17	.26	.84	.36	.25	.18	.11	.08
5	.12	.16	.23	.21	.17	.28	.84	.39	.25	.17	.11	.09
6	.12	.16	.23	.21	.17	.30	.81	.37	.27	.18	.11	.09
7	.12	.13	.23	.21	.17	.32	.78	.35	.32	.17	.11	.09
8	.13	.12	.23	.21	.17	.35	.78	.35	.28	.16	.11	.09
9	.12	.12	.22	.21	.17	.37	.72	.35	.28	.16	.12	.13
10	.13	.15	.22	.21	.17	.40	.74	.35	.27	.16	.12	.12
11	.16	.15	.22	.22	.17	.43	.75	.35	.25	.16	.12	.12
12	.16	.33	.22	.22	.17	.46	.71	.33	.25	.16	.12	.10
13	.16	.30	.22	.22	.17	.50	.68	.30	.26	.16	.11	.08
14	.16	.13	.22	.22	.17	.54	.65	.35	.25	.16	.11	.12
15	.16	.12	.21	.22	.17	.58	.59	.34	.25	.15	.11	.13
16	.16	.09	.21	.22	.17	.62	.54	.35	.25	.15	.10	.13
17	.15	.09	.20	.23	.17	.66	.54	.35	.24	.15	.10	.24
18	.13	.14	.19	.23	.17	.72	.52	.35	.24	.14	.10	.22
19	.16	.12	.17	.24	.17	.76	.49	.33	.23	.15	.10	.15
20	.16	.23	.19	.24	.17	.84	.49	.32	.22	.14	.11	.14
21	.16	.17	.20	.24	.17	.88	.49	.30	.21	.14	.12	.15
22	.14	.16	.21	.24	.17	.88	.46	.29	.22	.15	.11	.13
23	.12	.18	.22	.24	.17	.86	.46	.29	.22	.15	.09	.13
24	.12	.18	.23	.23	.17	.84	.43	.30	.21	.12	.09	.13
25	.15	.16	.23	.22	.17	.77	.39	.28	.21	.12	.08	.13
26	.16	.18	.23	.22	.17	.79	.39	.27	.21	.14	.08	.13
27	.16	.24	.22	.22	.18	.80	.39	.27	.21	.14	.08	.13
28	.16	.23	.22	.21	.19	.77	.36	.31	.19	.13	.08	.13
29	.16	.23	.21	.21	---	.76	.35	.31	.19	.11	.08	.13
30	.17	.23	.21	.20	---	.87	.35	.29	.18	.10	.07	.14
31	.20	---	.20	.19	---	.84	---	.26	---	.10	.07	---
TOTAL	4.49	5.59	6.71	6.76	4.82	18.12	18.13	10.11	7.20	4.64	3.17	3.70
MEAN	.14	.19	.22	.22	.17	.58	.60	.33	.24	.15	.10	.12
MAX	.20	.49	.23	.24	.19	.88	.93	.39	.32	.18	.12	.24
MIN	.12	.09	.17	.19	.17	.21	.35	.26	.18	.10	.07	.08
AC-FT	8.9	11	13	13	9.6	36	36	20	14	9.2	6.3	7.3

WTR YR 1985 TOTAL 93.44 MEAN .26 MAX .93 MIN .07 AC-FT 185

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1984 to current year.
pH: June 1984 to current year.
WATER TEMPERATURES: June 1984 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1984. Digital recorder set for one-hour-interval punch.

REMARKS.--Miscellaneous samples collected 1980.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 3,320 microsiemens Aug. 16, 1984; minimum recorded, 1,350 microsiemens Nov. 2, 1985.
pH: Maximum recorded, 8.3 units Sept. 11, 14, 1985; minimum recorded, 5.3 units Mar. 3-6, 1985.
WATER TEMPERATURES: Maximum recorded, 18.5°C July 8, 9, 1985; minimum, 0.0°C during many days from November to February 1985.

EXTREMES FOR CURRENT YEAR.--
JUNE TO SEPTEMBER 1984.--
SPECIFIC CONDUCTANCE: Maximum, 3,320 microsiemens Aug. 16; minimum, 1,630 microsiemens Aug. 2.
pH: Maximum, 8.2 units Aug. 6; minimum, 6.7 units June 30.
WATER TEMPERATURES: Maximum, 18.0°C July 25; minimum, 4.5°C Sept. 28.

WATER YEAR 1985.--
SPECIFIC CONDUCTANCE: Maximum recorded, 2,960 microsiemens July 30; minimum recorded, 1,350 microsiemens Nov. 2.
pH: Maximum recorded, 8.3 units Sept. 11, 14; minimum recorded, 5.3 units Mar. 3-6.
WATER TEMPERATURES: Maximum recorded, 18.5°C July 8, 9; minimum, 0.0°C during many days from November to February.

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	2560	2470	2510	1890	1650	1800	2650	2520	2580
2	---	---	---	2580	2490	2530	1800	1630	1730	2670	2520	2590
3	---	---	---	2760	2510	2560	2750	1760	2250	2690	2530	2600
4	---	---	---	2610	2500	2550	2790	2630	2690	2710	2530	2610
5	---	---	---	2570	2490	2540	2830	2670	2730	2720	2400	2610
6	---	---	---	2590	2510	2550	2640	2690	2750	2610	2350	2520
7	---	---	---	2590	2510	2550	2890	2720	2790	2620	2520	2580
8	---	---	---	2570	2500	2540	2910	2730	2800	2640	2510	2570
9	---	---	---	2580	2510	2550	2950	2770	2840	2650	2520	2590
10	---	---	---	2590	2510	2550	3110	2800	2930	2620	2520	2580
11	---	---	---	2620	2530	2570	3180	2970	3050	2600	2530	2560
12	---	---	---	2600	2530	2570	3200	3010	3080	2570	2500	2540
13	---	---	---	2620	2520	2570	3180	3020	3090	2600	2490	2540
14	---	---	---	2630	2510	2570	3230	3040	3120	2610	2500	2560
15	---	---	---	2610	2510	2560	3270	3070	3160	2620	2520	2570
16	---	---	---	2610	2530	2560	3320	3110	3190	2620	2510	2570
17	2520	---	---	2620	2550	2590	3210	2350	2810	2640	2500	2570
18	2590	2490	2530	2660	2570	2610	2430	2320	2370	2640	2510	2580
19	2630	2540	2580	2630	2530	2580	2460	2310	2400	2640	2520	2580
20	2670	2230	2590	2610	2520	2560	2490	2380	2430	2560	2350	2460
21	2390	1660	1860	2580	2500	2540	2520	2400	2460	2520	2470	2500
22	1770	1730	1750	2580	2480	2520	2550	2430	2490	2510	2380	2450
23	1840	1820	1830	2560	2460	2510	2570	2470	2510	2510	2440	2480
24	1940	1890	1910	2540	2420	2480	2580	2490	2530	2510	2450	2480
25	2040	2000	2020	2430	1910	2280	2620	2510	2550	2510	2440	2480
26	2150	2100	2140	1970	1780	1890	2670	2550	2600	2500	2460	2480
27	2250	2210	2230	1860	1740	1790	2740	2590	2650	2520	2460	2490
28	2340	2300	2330	1870	1700	1790	2670	2540	2600	2510	2450	2480
29	2500	2390	2440	1760	1720	1740	2690	2540	2610	2520	2450	2490
30	2520	2450	2480	1830	1740	1770	2660	2540	2590	2540	2460	2500
31	---	---	---	1880	1760	1810	2630	2530	2580	---	---	---
MONTH	---	---	---	2760	1700	2400	3320	1630	2650	2720	2350	2540

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	2520	2460	2490	2360	2090	2310	2200	2120	2180	2360	2340	2350
2	2520	2450	2480	2050	1350	1760	2330	2160	2230	2360	2340	2350
3	2530	2450	2490	2140	2010	2100	2340	2250	2290	2360	2340	2350
4	2500	2460	2480	2190	2140	2180	2440	2320	2370	---	---	---
5	2490	2450	2470	2220	2190	2210	2450	2340	2390	---	---	---
6	2470	2440	2460	2240	2220	2230	2460	2370	2410	---	---	---
7	2500	2440	2460	2240	2230	2230	2400	2270	2340	---	---	---
8	2520	2450	2480	2240	2220	2230	2280	2240	2260	---	---	---
9	2500	2450	2470	2230	2220	2230	2280	2240	2260	---	---	---
10	2500	2450	2470	2240	2090	2200	2290	2260	2280	---	---	---
11	2480	2290	2390	2160	2040	2120	2320	2280	2300	---	---	---
12	2470	2420	2440	2100	1580	1900	2310	2260	2300	---	---	---
13	2470	2440	2460	2180	1540	1970	2310	2280	2310	---	---	---
14	2470	2450	2460	2180	1920	2100	2330	2250	2310	---	---	---
15	2470	2440	2450	2220	2180	2210	2330	2280	2300	---	---	---
16	2460	2440	2450	2230	2220	2230	2360	2310	2340	---	---	---
17	2480	2450	2460	2240	2230	2230	2380	2320	2340	---	---	---
18	2470	2440	2450	2240	2160	2190	2460	2400	2430	---	---	---
19	2460	2420	2440	2180	2170	2170	2470	2380	2430	---	---	---
20	2440	2420	2430	2180	2050	2130	2430	2330	2400	---	---	---
21	2440	2400	2420	2080	2050	2060	2440	2400	2430	---	---	---
22	2420	2390	2410	2140	2080	2110	2390	2330	2370	---	---	---
23	2430	2400	2410	2190	2150	2170	2370	2320	2340	---	---	---
24	2410	2390	2400	2180	2170	2180	2360	2290	2340	---	---	---
25	2400	2380	2390	2220	2180	2200	2350	2290	2330	---	---	---
26	2420	2400	2410	2230	2210	2220	2360	2340	2350	---	---	---
27	2420	2380	2400	2260	2020	2170	2350	2330	2340	---	---	---
28	2390	2380	2380	2090	1980	2040	2380	2360	2360	---	---	---
29	2390	2360	2380	2160	2090	2130	2370	2340	2360	2470	2350	2390
30	2380	2370	2370	2190	2120	2170	2360	2330	2350	2520	2380	2450
31	2420	2360	2390	---	---	---	2370	2350	2360	2500	2400	2450
MONTH	2530	2290	2440	2360	1350	2150	2470	2120	2340	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2500	2390	2470	2420	2350	2380	2150	2070	2130	2410	2390	2400
2	2580	2450	2510	2470	2430	2450	2060	1990	2010	2400	2390	2400
3	2620	2540	2580	2530	2480	2500	2010	1970	1990	2410	2400	2410
4	2600	2470	2540	2550	2510	2540	2000	1970	1980	2410	2390	2400
5	2500	2410	2470	2550	2510	2530	2010	1970	2000	2410	2390	2400
6	2480	2400	2440	2570	2440	2520	2020	1970	2000	2420	2400	2410
7	2420	2320	2360	2500	2410	2460	2030	1980	2010	2410	2390	2400
8	2330	2270	2310	2510	2370	2450	2050	1980	2020	2410	2390	2400
9	2300	2280	2290	2460	2290	2390	2050	2000	2030	2420	2400	2410
10	2300	2260	2290	2410	2220	2340	2200	2000	2090	2420	2410	2410
11	2310	2220	2270	2380	2220	2310	2210	2170	2190	2430	2410	2420
12	2270	2220	2260	2360	2250	2320	2230	2170	2200	2430	2410	2420
13	2270	2240	2250	2290	2050	2200	2340	2230	2300	2430	2400	2410
14	2260	2230	2250	2230	1960	2120	2340	2280	2300	2420	2370	2400
15	2260	2240	2250	2200	1970	2100	2330	2280	2310	2400	2380	2390
16	2260	2210	2240	2180	2030	2120	2330	2300	2310	2430	2400	2410
17	2260	2250	2250	2160	2030	2100	2320	2280	2300	2450	2430	2440
18	2260	2210	2250	2170	2060	2140	2300	2270	2290	2460	2430	2450
19	2260	2240	2250	2150	2110	2130	2290	2260	2280	2480	2460	2470
20	2250	2230	2240	2110	2090	2100	2310	2260	2290	2500	2460	2480
21	2240	2230	2240	2120	2030	2070	2320	2260	2290	2520	2440	2480
22	2240	2210	2230	2250	2120	2190	2300	2250	2280	2530	2450	2490
23	2230	2190	2210	2300	2150	2250	2320	2280	2300	2550	2460	2500
24	2210	2090	2170	2250	2120	2190	2320	2260	2300	2490	2440	2470
25	2220	2180	2200	2310	2210	2270	2340	2290	2320	2520	2470	2490
26	2230	2200	2210	2370	2320	2350	2340	2320	2330	2530	2460	2490
27	2290	2220	2270	2380	2330	2360	2330	2310	2320	2500	2460	2490
28	2330	2290	2310	2360	2330	2340	2360	2300	2330	2490	2410	2440
29	---	---	---	2350	2320	2340	2390	2320	2370	2480	2390	2450
30	---	---	---	2360	2240	2330	2400	2370	2390	2460	2430	2440
31	---	---	---	2240	2160	2210	---	---	---	2500	2440	2470
MONTH	2620	2090	2310	2570	1960	2290	2400	1970	2210	2550	2370	2440

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPT_MBER	
1	2500	2470	2490	2580	2310	2480	2700	2590	2640	2750	2650	2700
2	2510	2440	2470	2570	2330	2490	2710	2580	2620	2810	2630	2700
3	2480	2430	2460	2590	2320	2520	2750	2580	2650	2800	2640	2710
4	2490	2450	2470	2590	2310	2480	2720	2600	2650	2800	2660	2720
5	2500	2470	2480	2580	2320	2480	2740	2590	2650	2780	2660	2710
6	2500	2420	2470	2700	2320	2500	2770	2610	2680	2780	2640	2710
7	2410	2370	2390	2710	2360	2560	2750	2630	2680	2740	2630	2680
8	2470	2400	2430	2720	2320	2580	2710	2570	2620	2740	2570	2680
9	2500	2440	2470	2740	2360	2620	2610	2570	2590	2570	2450	2520
10	2510	2450	2490	2750	2570	2690	2620	2560	2580	2620	2490	2550
11	2530	2460	2500	2740	2570	2710	2640	2560	2590	2610	2350	2530
12	2540	2470	2520	2740	2540	2680	2690	2570	2620	2640	2500	2570
13	2530	2510	2520	2730	2340	2660	2690	2590	2630	2650	2580	2620
14	2530	2490	2510	2750	2320	2630	2710	2590	2640	2630	1890	2320
15	2550	2490	2530	2750	2350	2680	272[illegible]	2610	2660	2540	2350	2460
16	2560	2500	2540	2750	2550	2700	2720	2620	2670	2560	2540	2550
17	2570	2510	2550	2750	2660	2700	2740	2620	2670	2570	2300	2450
18	2580	2470	2550	2730	2650	2700	2750	2640	2690	2530	2120	2460
19	2600	2420	2530	2740	2650	2680	2710	2650	2680	2490	1970	2290
20	2600	2450	2570	2730	2650	2690	2690	2630	2650	2540	2500	2530
21	2610	2440	2570	2730	2650	2690	2660	2600	2620	2580	2500	2530
22	2600	2440	2570	2790	2650	2720	2690	2600	2630	2600	2570	2580
23	2620	2440	2580	2790	2700	2740	2730	2630	2660	2610	2590	2600
24	2620	2360	2570	2780	2690	2740	2740	2650	2690	2610	2570	2590
25	2600	2350	2430	2760	2670	2720	2770	2650	2700	2670	2580	2620
26	2600	2370	2470	2850	2650	2710	2760	2670	2710	2690	2600	2640
27	2620	2350	2500	2840	2650	2730	2740	2670	2700	2670	2610	2640
28	2620	2330	2490	2840	2620	2710	2740	2650	2690	2660	2610	2640
29	2610	2330	2470	2850	2620	2740	2900	2680	2740	2650	2590	2620
30	2610	2320	2480	2960	2680	2840	2880	2670	2760	2630	2580	2510
31	---	---	---	2840	2670	2750	2830	2660	2740	---	---	---
MONTH	2620	2320	2500	2960	2310	2660	2900	2560	2660	2810	1890	2580

BEST COPY AVAILABLE

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	7.3	7.1	7.2	7.1	7.0	7.1	7.8	7.5	7.7
2	---	---	---	7.2	6.8	7.0	7.1	7.1	7.1	7.7	7.5	7.6
3	---	---	---	7.4	6.9	7.3	8.0	7.1	7.6	7.7	7.5	7.6
4	---	---	---	7.4	7.2	7.3	8.1	7.9	8.0	7.6	7.5	7.6
5	---	---	---	7.4	6.9	7.2	8.1	7.9	8.0	7.7	7.3	7.6
6	---	---	---	7.0	6.9	7.0	8.2	8.0	8.1	7.6	7.4	7.5
7	---	---	---	7.3	7.0	7.1	8.1	7.8	7.9	7.4	7.3	7.3
8	---	---	---	7.1	7.0	7.0	7.8	7.6	7.7	7.5	7.3	7.4
9	---	---	---	7.2	7.0	7.1	7.8	7.6	7.7	7.5	7.3	7.4
10	---	---	---	7.1	7.0	7.0	7.6	7.4	7.6	7.5	7.3	7.4
11	---	---	---	7.3	7.0	7.2	7.6	7.4	7.6	7.5	7.3	7.4
12	---	---	---	7.2	7.0	7.1	7.6	7.4	7.6	7.5	7.4	7.4
13	---	---	---	7.2	7.1	7.2	7.6	7.5	7.6	7.5	7.3	7.4
14	---	---	---	7.2	7.1	7.2	7.6	7.4	7.6	7.4	7.3	7.4
15	---	---	---	7.2	7.1	7.1	7.6	7.4	7.5	7.4	7.3	7.4
16	7.0	7.0	7.0	7.3	7.1	7.2	7.6	7.4	7.5	7.4	7.3	7.4
17	7.4	7.0	7.2	7.3	7.2	7.3	7.6	7.2	7.5	7.4	7.3	7.4
18	7.5	7.4	7.5	7.3	7.2	7.3	7.6	7.4	7.5	7.5	7.3	7.4
19	7.6	7.5	7.5	7.4	7.2	7.4	7.6	7.4	7.5	7.5	7.3	7.4
20	7.7	7.5	7.6	7.4	7.3	7.4	7.6	7.4	7.5	7.5	7.4	7.5
21	7.8	7.2	7.6	7.5	7.3	7.4	7.6	7.4	7.5	7.6	7.5	7.6
22	7.2	6.8	6.9	7.5	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.6
23	6.9	6.9	6.9	7.5	7.4	7.5	7.6	7.4	7.5	7.7	7.5	7.6
24	7.1	7.0	7.0	7.5	7.4	7.5	7.6	7.4	7.5	7.8	7.5	7.7
25	7.1	7.0	7.0	7.6	7.2	7.5	7.6	7.4	7.5	7.8	7.6	7.7
26	7.2	7.1	7.1	7.2	7.0	7.1	7.6	7.3	7.5	7.8	7.7	7.8
27	7.3	7.1	7.2	7.1	7.0	7.1	7.7	7.4	7.5	7.8	7.8	7.8
28	7.3	7.2	7.2	7.1	7.0	7.0	7.7	7.5	7.6	7.8	7.8	7.8
29	7.3	7.1	7.2	7.1	7.0	7.0	7.6	7.4	7.5	7.8	7.8	7.8
30	7.2	6.7	6.9	7.1	7.1	7.1	7.7	7.4	7.6	7.8	7.7	7.7
31	---	---	---	7.1	7.0	7.1	7.7	7.5	7.6	---	---	---
MONTH	---	---	---	7.6	6.8	7.2	8.2	7.0	7.6	7.8	7.3	7.5

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12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.8	7.7	7.7	7.9	7.8	7.9	7.8	7.8	7.8	7.7	7.7	7.7
2	7.8	7.7	7.7	7.9	7.0	7.3	7.8	7.7	7.8	7.7	7.7	7.7
3	7.8	7.7	7.7	7.0	7.0	7.0	7.8	7.5	7.7	7.7	7.6	7.7
4	7.8	7.7	7.7	7.0	7.0	7.0	7.7	7.5	7.6	---	---	---
5	7.7	7.7	7.7	7.1	7.0	7.0	7.6	7.5	7.6	---	---	---
6	7.7	7.7	7.7	7.1	7.1	7.1	7.6	7.6	7.6	---	---	---
7	7.7	7.7	7.7	7.2	7.1	7.1	7.6	7.6	7.6	---	---	---
8	7.7	7.7	7.7	7.2	7.2	7.2	7.7	7.6	7.7	---	---	---
9	7.8	7.7	7.7	7.2	7.2	7.2	7.7	7.7	7.7	---	---	---
10	7.8	7.7	7.7	7.3	7.3	7.3	7.8	7.8	7.8	---	---	---
11	7.8	7.7	7.8	7.3	7.3	7.3	7.8	7.8	7.8	---	---	---
12	7.9	7.7	7.8	7.4	7.3	7.3	7.8	7.8	7.8	---	---	---
13	7.7	7.6	7.7	7.3	7.3	7.3	7.8	7.8	7.8	---	---	---
14	7.7	7.6	7.6	7.3	7.3	7.3	7.9	7.8	7.8	---	---	---
15	7.6	7.6	7.6	7.3	7.3	7.3	7.9	7.8	7.9	---	---	---
16	7.6	7.6	7.6	7.4	7.3	7.3	7.9	7.7	7.8	---	---	---
17	7.6	7.5	7.6	7.4	7.4	7.4	7.9	7.8	7.8	---	---	---
18	7.6	7.5	7.5	7.4	7.4	7.4	7.8	7.6	7.7	---	---	---
19	7.6	7.5	7.5	7.4	7.4	7.4	7.7	7.5	7.7	---	---	---
20	7.6	7.5	7.5	7.5	7.4	7.4	7.7	7.7	7.7	---	---	---
21	7.6	7.5	7.5	7.5	7.5	7.5	7.7	7.7	7.7	---	---	---
22	7.6	7.6	7.6	7.5	7.5	7.5	7.7	7.7	7.7	---	---	---
23	7.7	7.7	7.7	7.5	7.5	7.5	7.8	7.7	7.8	---	---	---
24	7.7	7.7	7.7	7.5	7.5	7.5	7.8	7.7	7.8	---	---	---
25	7.7	7.7	7.7	7.5	7.5	7.5	7.8	7.7	7.7	---	---	---
26	7.8	7.7	7.7	7.7	7.6	7.6	7.8	7.7	7.8	---	---	---
27	7.8	7.8	7.8	7.8	7.6	7.7	7.8	7.8	7.8	---	---	---
28	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.8	7.8	---	---	---
29	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.5	7.3	7.4
30	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.3	7.0	7.2
31	7.9	7.8	7.9	---	---	---	7.8	7.7	7.7	7.3	7.2	7.3
MONTH	7.9	7.5	7.7	7.9	7.0	7.4	7.9	7.5	7.8	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.3	7.1	7.2	7.2	6.0	6.7	5.7	5.7	5.7	7.5	7.4	7.5
2	7.1	6.8	7.0	6.0	5.5	5.7	5.7	5.7	5.7	7.5	7.4	7.4
3	7.0	6.7	6.8	5.5	5.3	5.4	5.8	5.8	5.8	7.5	7.4	7.4
4	6.9	6.6	6.8	5.3	5.3	5.3	5.8	5.8	5.8	7.5	7.4	7.4
5	7.1	6.9	7.0	5.3	5.3	5.3	5.9	5.8	5.8	7.4	7.4	7.4
6	7.1	7.0	7.0	5.4	5.3	5.4	5.9	5.9	5.9	7.4	7.3	7.4
7	7.2	7.0	7.1	5.4	5.4	5.4	5.9	5.9	5.9	7.4	7.3	7.4
8	7.3	7.2	7.2	5.4	5.4	5.4	5.9	5.9	5.9	7.4	7.3	7.3
9	7.3	7.3	7.3	5.4	5.4	5.4	6.0	6.0	6.0	7.4	7.3	7.3
10	7.3	7.3	7.3	5.4	5.4	5.4	6.0	6.0	6.0	7.3	7.2	7.3
11	7.4	7.3	7.3	5.4	5.4	5.4	6.1	6.0	6.1	7.3	7.2	7.3
12	7.4	7.4	7.4	5.4	5.4	5.4	6.1	6.1	6.1	7.2	7.2	7.2
13	7.4	7.4	7.4	5.4	5.4	5.4	6.1	6.1	6.1	7.2	7.1	7.2
14	7.5	7.4	7.4	5.4	5.4	5.4	6.2	6.1	6.2	7.2	7.1	7.2
15	7.5	7.4	7.5	5.4	5.4	5.4	6.2	6.2	6.2	7.2	7.1	7.2
16	7.5	7.5	7.5	5.4	5.4	5.4	6.2	6.2	6.2	7.1	7.1	7.1
17	7.5	7.5	7.5	5.4	5.4	5.4	6.3	6.3	6.3	7.0	7.0	7.0
18	7.5	7.5	7.5	5.4	5.4	5.4	6.3	6.3	6.3	7.0	6.9	6.9
19	7.5	7.5	7.5	5.4	5.4	5.4	6.4	6.4	6.4	6.9	6.9	6.9
20	7.6	7.5	7.5	5.4	5.4	5.4	6.4	6.4	6.4	6.9	6.5	6.7
21	7.6	7.5	7.5	5.4	5.4	5.4	6.5	6.4	6.3	6.5	6.5	6.5
22	7.6	7.5	7.6	5.4	5.4	5.4	6.5	6.5	6.5	6.6	6.6	6.6
23	7.6	7.6	7.6	5.4	5.4	5.4	6.5	6.5	6.5	6.7	6.6	6.6
24	7.6	7.6	7.6	5.4	5.4	5.4	6.6	6.6	6.6	6.7	6.7	6.7
25	7.6	7.5	7.5	5.5	5.4	5.4	6.6	6.6	6.6	6.7	6.7	6.7
26	7.7	7.4	7.6	5.5	5.5	5.5	6.7	6.7	6.7	6.8	6.8	6.8
27	7.6	7.5	7.6	5.5	5.5	5.5	6.7	6.7	6.7	6.8	6.8	6.8
28	7.5	7.3	7.4	5.5	5.5	5.5	6.8	6.8	6.8	6.8	6.8	6.8
29	---	---	---	5.6	5.6	5.6	7.5	6.8	7.1	6.9	6.8	6.9
30	---	---	---	5.6	5.6	5.6	7.6	7.4	7.5	7.0	6.9	6.9
31	---	---	---	5.6	5.6	5.6	---	---	---	7.0	7.0	7.0
MONTH	7.7	6.6	7.3	7.2	5.3	5.5	7.6	5.7	6.3	7.5	6.5	7.1

BEST COPY AVAILABLE

12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.0	7.0	7.0	7.3	7.1	7.2	7.8	7.7	7.8	7.9	7.8	7.9
2	7.1	7.0	7.0	7.3	7.1	7.3	7.8	7.7	7.8	8.0	7.8	7.9
3	7.1	7.1	7.1	7.3	7.1	7.3	7.8	7.5	7.7	7.9	7.8	7.9
4	7.1	7.1	7.1	7.3	7.1	7.3	7.8	7.6	7.7	8.0	7.9	7.9
5	7.1	7.1	7.1	7.4	7.1	7.3	7.8	7.5	7.7	8.1	8.0	8.1
6	7.2	7.1	7.2	7.4	7.1	7.3	7.7	7.5	7.6	8.1	8.0	8.1
7	7.2	7.1	7.2	7.4	7.2	7.3	7.7	7.5	7.6	8.1	8.0	8.1
8	7.2	7.2	7.2	7.4	7.2	7.3	7.8	7.6	7.7	8.2	8.1	8.1
9	7.2	7.2	7.2	7.4	7.2	7.3	7.8	7.7	7.7	8.2	8.2	8.2
10	7.3	7.2	7.2	7.4	7.3	7.3	7.8	7.7	7.7	8.2	8.1	8.1
11	7.3	7.2	7.2	7.4	7.3	7.3	7.8	7.6	7.7	8.3	8.1	8.2
12	7.3	7.2	7.2	7.4	7.3	7.3	7.7	7.5	7.6	8.1	8.1	8.1
13	7.3	7.3	7.3	7.4	7.2	7.3	7.7	7.5	7.6	8.2	8.1	8.1
14	7.3	7.2	7.3	7.4	7.2	7.3	7.7	7.4	7.6	8.3	7.6	8.0
15	7.3	7.3	7.3	7.4	7.2	7.3	7.7	7.4	7.6	7.7	7.6	7.6
16	7.3	7.3	7.3	7.4	7.3	7.3	7.6	7.4	7.6	7.7	7.6	7.6
17	7.4	7.3	7.3	7.4	7.3	7.3	7.6	7.4	7.5	7.7	7.7	7.7
18	7.4	7.2	7.3	7.3	7.3	7.3	7.7	7.3	7.5	7.7	7.5	7.7
19	7.3	7.2	7.2	7.3	7.3	7.3	7.7	7.5	7.6	7.6	7.4	7.5
20	7.3	7.2	7.3	7.3	7.3	7.3	7.7	7.5	7.6	7.5	7.5	7.5
21	7.3	7.2	7.3	7.3	7.3	7.3	7.7	7.5	7.6	7.6	7.5	7.5
22	7.3	7.3	7.3	7.4	7.3	7.3	7.6	7.4	7.5	7.6	7.6	7.6
23	7.3	7.1	7.2	7.4	7.3	7.4	7.6	7.4	7.5	7.7	7.6	7.7
24	7.3	7.0	7.2	7.4	7.4	7.4	7.5	7.3	7.4	7.8	7.7	7.7
25	7.3	7.0	7.1	7.5	7.3	7.4	7.5	7.3	7.4	8.0	7.8	7.9
26	7.3	7.0	7.2	7.5	7.4	7.5	7.5	7.3	7.4	8.0	8.0	8.0
27	7.3	7.1	7.2	7.5	7.4	7.5	7.4	7.3	7.4	8.0	8.0	8.0
28	7.3	7.1	7.2	7.5	7.5	7.5	7.4	7.2	7.3	8.0	8.0	8.0
29	7.3	7.1	7.2	7.6	7.5	7.5	7.8	7.4	7.5	8.0	8.0	8.0
30	7.3	7.1	7.2	7.7	7.1	7.5	7.9	7.7	7.8	8.0	8.0	8.0
31	---	---	---	7.8	7.5	7.7	7.9	7.7	7.8	---	---	---
MONTH	7.4	7.0	7.2	7.8	7.1	7.4	7.9	7.2	7.6	8.3	7.4	7.9

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12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	13.0	10.5	11.5	17.5	13.5	15.5	13.0	10.0	11.5
2	---	---	---	13.5	11.0	12.0	17.0	14.0	15.5	13.5	9.0	11.0
3	---	---	---	15.0	11.5	13.0	17.5	14.0	15.5	15.0	10.5	12.5
4	---	---	---	15.0	11.0	13.0	17.5	14.0	15.5	15.0	10.5	12.5
5	---	---	---	15.5	12.0	13.5	17.0	14.0	15.5	15.0	12.0	13.5
6	---	---	---	14.0	10.5	12.0	15.5	12.0	14.0	12.5	10.5	11.5
7	---	---	---	14.0	9.5	11.5	16.0	11.5	13.5	12.5	8.0	10.5
8	---	---	---	14.0	10.0	12.0	17.0	12.5	14.5	14.5	11.5	13.0
9	---	---	---	14.5	10.5	12.0	17.5	13.0	15.0	13.5	10.0	12.0
10	---	---	---	15.0	10.5	12.5	17.0	14.5	15.5	13.0	9.0	11.0
11	---	---	---	15.0	11.0	13.0	17.5	13.5	15.5	11.5	9.5	10.5
12	---	---	---	14.0	10.5	12.5	17.5	14.0	15.5	11.5	7.5	9.5
13	---	---	---	14.5	10.5	12.0	15.5	11.5	13.0	12.0	7.5	9.5
14	---	---	---	14.5	10.5	12.5	15.5	10.5	13.0	12.0	7.0	9.5
15	---	---	---	15.0	11.0	13.0	16.0	11.0	13.5	13.0	9.0	11.0
16	---	---	---	15.5	11.5	13.5	16.5	12.0	14.0	13.0	9.0	11.0
17	13.5	---	---	16.0	12.0	14.0	17.0	13.0	14.5	14.0	9.5	11.5
18	14.0	9.0	11.5	16.5	11.5	13.5	16.0	12.0	14.0	14.5	10.5	12.5
19	13.5	9.5	11.5	16.0	11.5	13.0	15.0	10.5	12.5	14.0	10.5	12.5
20	13.5	10.5	12.0	15.0	10.5	12.5	15.0	10.0	12.5	13.0	11.0	12.5
21	11.5	10.5	11.0	14.5	10.0	12.0	15.5	10.5	13.0	11.0	8.5	10.0
22	11.5	10.5	11.0	15.0	10.0	12.5	16.0	11.5	13.5	9.5	8.5	9.0
23	12.5	10.0	11.0	15.5	11.0	13.0	15.5	12.0	13.5	9.5	7.5	9.0
24	13.0	11.0	12.0	16.5	12.0	14.0	15.0	10.5	12.5	9.0	5.5	7.5
25	13.5	11.5	12.5	18.0	13.0	15.0	15.5	10.5	12.5	10.0	6.5	8.5
26	13.5	12.0	13.0	17.0	14.0	15.5	15.5	11.5	13.5	10.0	8.0	9.0
27	14.0	12.0	13.0	17.5	14.0	15.5	15.5	11.5	13.0	9.5	6.0	7.5
28	15.0	12.5	13.5	17.5	13.5	15.5	12.5	9.0	11.0	9.0	4.5	6.5
29	14.0	11.5	13.0	16.0	14.0	15.0	13.5	8.5	11.0	9.5	5.0	7.0
30	12.5	9.5	11.0	17.0	13.5	15.0	13.0	9.5	11.5	10.0	6.0	8.0
31	---	---	---	17.5	13.5	15.5	14.0	11.5	12.5	---	---	---
MONTH	---	---	---	18.0	9.5	13.5	17.5	8.5	13.5	15.0	4.5	10.5

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12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.5	6.5	8.5	2.0	.0	1.5	3.0	1.0	2.0	.5	.0	.5
2	11.0	7.0	9.0	4.5	2.0	3.5	2.0	.0	1.0	.5	.0	.5
3	11.5	7.5	9.5	6.0	4.5	5.0	1.0	.0	.0	.5	.0	.5
4	11.5	8.5	9.5	6.0	4.0	4.5	.5	.0	.0	---	.0	---
5	10.0	6.5	8.5	5.5	3.0	4.5	.5	.0	.0	---	---	---
6	10.5	7.5	9.0	6.0	4.5	5.0	1.0	.0	.5	---	---	---
7	11.5	8.0	9.5	6.0	4.0	4.5	1.5	.5	1.0	---	---	---
8	12.0	8.5	10.5	5.5	3.0	4.0	2.5	1.5	2.0	---	---	---
9	11.5	9.0	10.5	5.5	4.0	4.5	2.5	2.0	2.5	---	---	---
10	12.5	10.0	11.0	5.5	4.0	4.5	3.0	2.5	3.0	---	---	---
11	11.0	9.0	10.5	6.0	4.5	5.5	2.5	1.5	2.0	---	---	---
12	9.0	7.0	8.0	7.0	6.0	6.5	3.0	2.0	2.5	---	---	---
13	8.5	6.5	7.5	7.5	6.0	6.5	2.5	1.5	2.0	---	---	---
14	8.0	4.5	6.5	5.5	3.0	4.5	3.0	2.0	3.0	---	---	---
15	7.5	5.0	6.0	4.0	2.0	3.0	3.0	1.5	2.5	---	---	---
16	8.0	5.0	6.5	4.5	3.0	3.5	2.0	.5	1.5	---	---	---
17	7.0	3.5	5.0	4.5	3.0	4.0	2.0	.0	1.0	---	---	---
18	6.0	3.5	4.5	5.0	4.0	4.5	.0	.0	.0	---	---	---
19	5.5	2.5	4.0	5.5	5.0	5.0	.5	.0	.0	---	--	---
20	5.5	3.0	4.0	5.5	4.5	5.0	1.0	.0	.5	---	---	---
21	5.0	2.0	3.5	5.0	4.5	4.5	1.0	.5	.5	---	---	---
22	5.5	2.0	3.5	5.0	4.5	4.5	2.0	1.0	1.5	---	---	---
23	4.5	2.5	4.0	5.0	3.5	4.0	2.5	1.0	2.0	---	---	---
24	6.0	4.0	5.0	4.0	4.0	4.0	2.0	1.0	1.5	---	---	---
25	8.0	5.5	7.0	4.0	3.0	4.0	2.5	2.0	2.0	---	---	---
26	6.5	4.0	5.5	3.5	3.0	3.0	3.0	2.5	2.5	---	---	---
27	5.5	2.5	4.0	3.0	.5	2.0	2.5	2.0	2.5	---	---	---
28	6.0	4.0	5.5	3.5	2.0	3.0	2.0	.5	1.5	---	---	---
29	5.0	3.0	4.0	4.0	2.5	3.0	2.0	.5	1.5	1.5	.0	.5
30	5.5	3.5	4.5	3.5	3.0	3.5	1.5	1.5	1.5	.5	.0	.0
31	3.5	.5	1.5	---	---	---	1.5	.0	.5	.5	.0	.0
MONTH	12.5	.5	6.5	7.5	.0	4.0	3.0	.0	1.5	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.0	.0	3.5	2.5	3.0	8.5	6.0	7.0	13.0	9.0	11.0
2	.0	.0	.0	3.5	2.0	2.5	8.0	5.5	6.5	13.5	10.0	12.0
3	.0	.0	.0	3.0	1.0	2.0	8.0	6.0	7.0	11.5	9.0	10.5
4	.0	.0	.0	3.5	2.5	3.0	8.5	5.0	6.5	10.0	7.5	9.0
5	1.0	.0	.5	4.0	3.0	3.5	9.0	5.5	7.0	10.5	7.0	9.0
6	1.0	.0	.5	4.0	2.0	3.0	9.0	5.5	7.0	12.0	8.5	10.0
7	1.5	.5	1.0	4.0	1.5	3.0	9.5	5.5	7.5	12.5	9.5	11.0
8	1.5	1.0	1.5	4.0	1.5	3.0	10.5	6.0	8.5	11.5	9.5	10.5
9	1.5	1.0	1.5	4.5	2.5	3.5	11.0	6.0	8.5	12.0	8.0	10.0
10	1.5	1.0	1.5	5.0	2.5	3.5	12.0	7.0	9.5	11.0	8.0	10.0
11	2.0	1.5	1.5	5.0	2.5	3.5	11.0	8.0	9.5	10.0	7.5	9.0
12	2.0	1.5	2.0	5.5	2.5	4.0	11.5	7.0	9.5	10.5	6.5	8.5
13	2.0	1.5	1.5	5.5	3.0	4.0	12.5	7.5	10.0	11.5	7.0	9.5
14	2.5	1.5	2.0	6.0	3.5	4.5	12.5	8.5	10.5	11.5	10.0	10.5
15	2.5	1.5	2.0	6.5	3.5	4.5	12.0	8.5	10.5	13.5	8.5	11.0
16	2.0	1.0	1.5	6.5	3.5	5.0	10.5	9.0	10.0	14.5	10.5	12.5
17	2.0	1.0	1.5	6.5	4.0	5.5	11.0	7.0	9.0	15.0	11.0	13.0
18	2.5	1.5	2.0	7.0	4.5	5.5	10.0	8.0	9.0	15.5	11.0	13.0
19	2.5	1.5	2.0	7.0	5.0	6.0	9.5	6.0	8.0	15.0	11.5	13.5
20	2.5	2.0	2.0	7.0	5.5	6.0	8.5	4.0	6.5	13.0	11.5	12.0
21	2.5	1.5	2.5	6.5	3.0	5.0	8.5	3.5	6.5	15.5	9.5	12.5
22	2.5	2.0	2.5	3.5	2.5	3.0	9.5	6.0	8.0	16.5	10.0	13.0
23	2.5	2.5	2.5	5.0	3.0	4.0	9.5	6.0	8.0	16.5	11.0	13.5
24	3.0	2.0	2.5	6.0	2.5	4.5	9.5	4.0	7.0	15.0	12.0	13.5
25	2.5	1.5	2.0	5.5	2.0	3.5	9.5	5.0	7.5	14.5	9.5	12.0
26	3.0	1.5	2.0	5.0	2.5	4.0	8.0	5.5	7.0	15.0	9.5	12.0
27	3.0	1.5	2.0	5.0	4.0	4.5	11.0	7.5	9.5	14.0	10.0	12.0
28	3.5	2.0	2.5	6.5	3.5	5.0	12.5	9.0	10.5	13.5	11.0	12.0
29	---	---	---	6.0	3.5	4.5	11.5	6.5	9.0	12.5	9.5	11.0
30	---	---	---	6.0	4.0	5.0	12.0	7.0	10.0	12.0	9.5	10.5
31	---	---	---	7.5	4.0	6.0	---	---	---	14.0	8.5	11.5
MONTH	3.5	.0	1.5	7.5	1.0	4.0	12.5	3.5	8.5	16.5	6.5	11.5

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12433556 MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.0	10.0	12.0	16.0	9.5	12.5	15.5	14.0	14.5	12.5	9.5	11.5
2	11.5	10.0	10.5	17.0	9.0	13.5	16.0	13.5	14.5	14.0	11.0	12.5
3	13.5	9.0	11.5	17.5	11.0	14.0	16.0	12.5	14.5	14.0	10.0	12.0
4	14.0	11.0	12.5	18.0	11.0	14.5	15.5	12.5	14.0	14.0	10.5	12.5
5	12.0	10.0	11.0	16.0	11.0	13.5	16.0	12.5	14.0	13.5	11.5	12.5
6	11.0	9.5	10.0	16.5	8.5	12.5	16.0	11.5	13.5	13.0	10.0	12.5
7	12.5	10.5	11.5	17.5	10.5	13.5	15.0	12.5	13.5	12.0	8.5	10.5
8	13.0	8.5	10.5	18.5	10.5	14.5	13.5	12.0	13.0	12.5	11.0	12.0
9	13.0	8.0	10.5	18.5	12.0	15.5	13.5	10.5	12.0	12.0	11.5	12.0
10	13.5	8.0	11.0	18.0	12.0	15.0	13.5	11.0	12.5	13.0	11.5	12.0
11	15.0	8.5	11.5	16.5	11.0	13.5	14.5	10.0	12.5	12.5	11.5	12.0
12	15.5	10.0	13.0	17.0	10.0	13.0	14.0	11.0	13.0	12.5	10.5	12.0
13	13.5	10.0	12.0	15.0	9.0	12.0	14.0	10.0	12.0	12.5	10.0	11.5
14	14.5	10.3	13.0	15.0	8.5	12.0	14.5	10.5	12.5	12.5	8.5	11.5
15	15.0	10.0	12.5	16.0	9.0	12.5	14.5	11.5	13.0	12.0	10.5	11.5
16	14.5	8.5	11.5	15.5	9.5	12.5	14.5	10.0	12.0	11.5	10.0	11.0
17	15.0	8.0	12.0	15.5	9.5	13.0	15.0	10.5	12.5	11.5	10.5	11.0
18	16.5	9.5	13.0	16.5	10.0	13.0	15.0	10.0	12.5	11.5	9.0	10.5
19	17.0	10.5	14.0	16.0	9.0	12.5	14.5	12.0	13.5	11.5	9.0	10.5
20	15.5	10.5	13.0	16.0	9.0	12.5	13.0	11.0	12.0	11.0	8.5	10.0
21	15.5	9.0	12.5	16.0	9.0	13.0	14.0	10.5	12.0	11.5	9.5	10.5
22	15.0	8.5	12.0	16.5	9.5	13.5	14.0	9.5	11.5	10.5	8.0	9.5
23	13.5	7.5	10.5	17.0	12.5	14.5	14.0	9.5	12.0	10.5	7.5	9.0
24	12.5	6.5	10.0	17.0	11.0	14.0	14.5	11.5	13.0	11.5	9.0	10.5
25	14.0	7.0	11.0	17.0	11.0	14.0	16.0	12.5	14.0	11.0	8.5	10.0
26	15.0	9.0	12.0	17.0	11.0	14.0	15.0	11.0	13.0	11.0	8.5	9.5
27	15.5	9.0	12.5	16.0	10.5	13.5	14.5	11.0	12.5	10.5	7.5	9.0
28	15.5	9.5	12.5	17.0	11.0	14.0	15.0	11.5	13.0	8.5	6.0	7.0
29	16.5	9.5	12.5	17.0	12.0	15.0	14.5	10.0	12.0	8.5	4.5	6.5
30	15.5	9.5	12.5	17.5	14.0	15.5	13.5	10.0	12.0	9.0	5.0	7.5
31	---	---	---	16.5	13.0	15.0	13.0	9.0	11.0	---	---	---
MONTH	17.0	6.5	12.0	18.5	8.5	13.5	16.0	9.0	13.0	14.0	4.5	10.5

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE NEAR WELLPINIT, WA

LOCATION.--Lat 47°55'27", long 118°06'20", in NW¼SE¼ sec. 13, T.28 N., R.37 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, 100 ft downstream from mouth of unnamed tributary, and 2.4 mi southwest of Turtle Lake.

DRAINAGE AREA.--7.3 mi².

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1984 to current year.
pH: June 1984 to current year.
WATER TEMPERATURES: July 1984 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1984. Digital recorder set for one-hour-interval punch.

REMARKS.--Miscellaneous samples collected 1980.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,800 microsiemens Sept. 18, 1985; minimum recorded, 156 microsiemens Apr. 23, 1985.
pH: Maximum recorded, 8.2 units Aug. 14-17, 1985; minimum recorded, 6.1 units Mar. 4, 1985.
WATER TEMPERATURES: Maximum, 21.5°C July 9, 10, 1985; minimum, 0.0°C during many days from October to February, 1985.

EXTREMES FOR CURRENT YEAR.--
JUNE TO SEPTEMBER 1984.--
SPECIFIC CONDUCTANCE: Maximum, 1,510 microsiemens Aug. 27; minimum, 596 microsiemens June 21.
pH: Maximum recorded, 8.0 units June 20, 21, 26, Aug. 18; minimum recorded, 7.1 units June 22.
JULY TO SEPTEMBER 1984.--
WATER TEMPERATURES: Maximum, 20.5°C Aug. 3, 4, 9; minimum, 4.0°C Sept. 28, 29.

WATER YEAR 1985.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,800 microsiemens Sept. 18; minimum recorded, 156 microsiements Apr. 23.
pH: Maximum recorded, 8.2 units Aug. 14-17; minimum recorded, 6.1 units Mar. 4.
WATER TEMPERATURES: Maximum, 21.5°C July 9, 10; minimum, 0.0°C during many days from October to February.

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	887	867	880	1210	1020	1130	1460	1280	1350
2	---	---	---	924	894	908	1130	960	1060	1470	1260	1340
3	---	---	---	980	900	937	1210	1090	1140	1420	1250	1340
4	---	---	---	1060	933	979	1300	1120	1190	1410	1260	1340
5	---	---	---	1020	945	979	1300	1140	1200	1440	1210	1340
6	---	---	---	1120	938	993	1310	1140	1210	1420	1180	1290
7	---	---	---	1120	811	989	1370	1130	1220	1460	1280	1370
8	---	---	---	1130	943	997	1280	1160	1220	1400	1260	1330
9	---	---	---	1040	956	1000	1310	1150	1220	1430	1290	1360
10	---	---	---	1030	959	1000	1320	1210	1250	1460	1300	1380
11	---	---	---	1050	881	993	1340	1210	1270	1480	1340	1390
12	---	---	---	1190	964	1020	1350	1220	1280	1430	1280	1370
13	---	---	---	1080	967	1020	1390	1200	1280	1420	1280	1360
14	---	---	---	1060	959	1010	1390	1200	1280	1420	1290	1360
15	---	---	---	1040	962	1010	1330	1210	1200	1420	1290	1360
16	---	---	---	1110	955	1020	1440	1200	1280	1420	1250	1350
17	827	747	781	1070	987	1030	1340	1220	1280	1380	1270	1340
18	885	765	801	1140	1000	1060	1390	1200	1270	1440	1270	1360
19	852	792	815	1140	974	1050	1390	1210	1280	1410	1300	1360
20	849	799	829	1150	1010	1080	1440	1210	1290	1440	1170	1280
21	897	596	671	1200	1030	1090	1390	1210	1280	1380	1310	1340
22	664	624	642	1180	1020	1090	1430	1220	1300	1400	1230	1320
23	711	671	685	1160	1030	1090	1400	1200	1300	1350	1240	1320
24	738	708	722	1190	1040	1100	1440	1220	1300	1390	1310	1350
25	766	746	753	1220	1070	1130	1360	1230	1280	1380	1230	1330
26	783	763	775	1220	1060	1130	1410	1120	1270	1410	1290	1330
27	800	790	794	1220	1070	1130	1510	1250	1350	1390	1290	1330
28	838	808	821	1200	1080	1140	1460	1260	1340	1370	1270	1320
29	845	825	837	1170	1070	1120	1430	1250	1330	1390	1280	1330
30	861	841	852	1180	1060	1130	1410	1270	1340	1390	1280	1330
31	---	---	---	1210	1080	1140	1460	1260	1340	---	---	---
MONTH	---	---	---	1220	811	1040	1510	960	1260	1480	1170	1340

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1370	1260	1310	1380	1260	1330						
2	1350	1260	1300	1190	821	1040						
3	1360	1280	1320	1220	1170	1190						
4	1370	1280	1320	1270	1210	1250						
5	1370	1290	1330	1300	1260	1290						
6	1350	1270	1320	1300	1230	1280						
7	1350	1290	1320	1290	1250	1270						
8	1350	1290	1320	1320	1240	1280						
9	1340	1280	1310	1280	1170	1230						
10	1350	1310	1330	1270	1030	1180						
11	1350	1180	1270	1230	1090	1170						
12	1340	1270	1310	1120	921	1030						
13	1380	1270	1350	1220	943	1120						
14	1440	1300	1370	1280	1040	1210						
15	1400	1340	1370	1360	1290	1310						
16	1400	1340	1360	1330	1300	1310						
17	1400	1350	1380	1320	1290	1300						
18	1400	1350	1370	1310	1130	1210						
19	1400	1320	1360	1250	1210	1240						
20	1370	1330	1350	1250	1060	1130						
21	1380	1290	1340	1200	1060	1130						
22	1390	1310	1340	1260	1200	1230						
23	1380	1290	1330	1280	1160	1250						
24	1330	1280	1310	1240	1150	1200						
25	1340	1280	1300	1270	1250	1260						
26	1370	1270	1340	1280	1250	1270						
27	1370	1300	1330	1400	921	1260						
28	1340	1270	1300	---	---	---						
29	1340	1280	1310	---	---	---						
30	1350	1280	1300	---	---	---						
31	1430	1310	1350	---	---	---						
MONTH	1440	1180	1330	---	---	---						

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	1210	1190	1200	859	679	793	401	391	393
2	---	---	---	1230	1200	1220	678	338	485	404	394	397
3	---	---	---	1250	1210	1230	628	358	557	407	377	394
4	---	---	---	1260	1220	1250	498	328	398	400	390	393
5	---	---	---	1260	1210	1240	438	338	372	413	383	397
6	---	---	---	1260	1180	1230	368	338	356	416	396	406
7	---	---	---	1240	1200	1220	358	338	353	419	399	408
8	---	---	---	1260	1190	1230	338	228	269	412	402	409
9	---	---	---	1270	1200	1230	228	208	218	445	405	424
10	---	---	---	1340	1210	1270	337	187	243	488	439	454
11	---	---	---	1390	1350	1370	317	297	309	512	472	491
12	---	---	---	1430	1390	1400	337	287	310	525	485	508
13	---	---	---	1460	1390	1430	337	307	326	518	498	510
14	---	---	---	1510	1350	1450	347	327	332	521	501	514
15	---	---	---	1500	1300	1430	337	317	327	564	534	547
16	---	---	---	1490	1320	1430	327	207	277	547	527	538
17	---	---	---	1490	1320	1430	207	166	189	540	520	528
18	---	---	---	1480	1220	1380	216	176	195	553	533	540
19	---	---	---	1460	967	1240	206	186	196	596	556	571
20	---	---	---	1130	934	1060	196	176	186	719	609	656
21	---	---	---	1070	920	995	186	166	175	730	670	697
22	---	---	---	1140	1080	1110	176	166	170	750	680	710
23	---	---	---	1150	1060	1110	306	156	234	781	701	727
24	---	---	---	1100	1020	1070	306	236	271	762	702	730
25	1280	1190	1250	1120	1050	1080	245	205	222	773	723	751
26	1190	1140	1170	1100	1060	1080	215	195	206	793	733	765
27	1160	1100	1140	1100	1040	1060	215	205	206	804	734	774
28	1210	1120	1160	1080	969	1030	335	205	223	825	745	769
29	---	---	---	1030	969	1000	475	365	420	826	756	781
30	---	---	---	999	899	956	398	378	391	806	766	784
31	---	---	---	959	829	905	---	---	---	827	767	795
MONTH	---	---	---	1510	829	1200	859	156	307	827	377	573

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	839	768	805	1130	864	968	1370	1210	1280	1530	1380	1430
2	809	759	783	1060	896	979	1360	1190	1280	1510	1320	1430
3	829	759	799	1410	727	996	1380	1210	1300	1610	1330	1480
4	860	770	812	1090	878	983	1410	1240	1330	1600	1170	1460
5	891	801	821	1070	900	1000	1410	1220	1330	1670	1430	1540
6	852	782	814	1090	891	1010	1440	1230	1340	1560	1410	1490
7	822	772	800	1110	893	1010	1460	1250	1360	1540	1380	1470
8	853	783	821	1110	894	1010	1460	1270	1350	1570	1310	1450
9	894	794	835	1120	905	1030	1430	1310	1360	1400	1320	1360
10	895	805	845	1130	767	1020	1440	1290	1370	1430	1300	1360
11	895	805	852	1130	978	1060	1410	1240	1330	1570	1260	1420
12	896	806	856	1140	959	1070	1430	1300	1370	1460	1300	1410
13	907	817	861	1190	981	1080	1460	1290	1380	1540	1390	1460
14	918	828	879	1170	952	1070	1460	1280	1390	1570	1020	1320
15	978	848	888	1170	993	1090	1520	1280	1410	1520	1370	1470
16	939	849	894	1280	995	1120	1490	1290	1390	1540	1490	1520
17	950	840	895	1210	996	1130	1610	1290	1420	1540	1160	1350
18	960	861	903	1250	988	1130	1500	1290	1410	1800	1000	1400
19	961	871	917	1260	999	1150	1530	1310	1430	1490	1050	1310
20	992	862	922	1290	1010	1160	1790	1440	1610	1500	1400	1460
21	1060	883	941	1290	1010	1160	1520	1450	1490	1470	1390	1420
22	983	863	937	1330	1020	1180	1550	1360	1460	1510	1430	1470
23	984	904	943	1350	1030	1180	1540	1340	1460	1570	1460	1500
24	1010	875	941	1320	1080	1220	1560	1360	1460	1510	1410	1470
25	1120	726	935	1350	1050	1200	1550	1320	1450	1490	1410	1460
26	1320	878	955	1370	1060	1220	1560	1340	1460	1500	1410	1460
27	1410	639	973	1400	1070	1240	1610	1380	1470	1550	1390	1470
28	1080	890	965	1370	1080	1250	1540	1370	1460	1510	1420	1470
29	1220	852	974	1410	1110	1270	1550	1330	1460	1530	1400	1470
30	993	883	946	1400	1120	1280	1630	1390	1530	1490	1410	1460
31	---	---	---	1430	1150	1290	1550	1410	1490	---	---	---
MONTH	1410	639	884	1430	727	1110	1790	1190	1410	1800	1000	1440

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	7.6	7.5	7.6	7.6	7.3	7.5	7.8	7.7	7.7
2	---	---	---	7.6	7.5	7.5	7.3	7.2	7.3	7.8	7.7	7.7
3	---	---	---	7.6	7.5	7.5	7.9	7.3	7.5	7.7	7.6	7.7
4	---	---	---	7.6	7.5	7.5	7.9	7.7	7.8	7.7	7.6	7.7
5	---	---	---	7.6	7.5	7.5	7.9	7.7	7.8	7.7	7.5	7.6
6	---	---	---	7.6	7.5	7.5	7.9	7.7	7.8	7.7	7.6	7.7
7	---	---	---	7.6	7.5	7.5	7.8	7.7	7.8	7.7	7.6	7.7
8	---	---	---	7.6	7.5	7.5	7.8	7.7	7.8	7.7	7.6	7.6
9	---	---	---	7.6	7.5	7.5	7.8	7.7	7.7	7.7	7.5	7.6
10	---	---	---	7.6	7.5	7.5	7.9	7.7	7.8	7.6	7.5	7.6
11	---	---	---	7.6	7.5	7.5	7.9	7.8	7.8	7.6	7.5	7.5
12	---	---	---	7.6	7.5	7.5	7.9	7.8	7.8	7.6	7.5	7.5
13	---	---	---	7.6	7.5	7.5	7.9	7.8	7.8	7.6	7.5	7.5
14	---	---	---	7.6	7.5	7.5	7.9	7.7	7.8	7.5	7.4	7.5
15	---	---	---	7.6	7.5	7.5	7.8	7.7	7.8	7.6	7.5	7.5
16	---	---	---	7.6	7.5	7.5	7.8	7.7	7.8	7.6	7.4	7.5
17	7.7	7.6	7.7	7.6	7.5	7.5	7.9	7.7	7.8	7.6	7.4	7.5
18	7.8	7.7	7.7	7.7	7.5	7.6	8.0	7.8	7.9	7.5	7.4	7.5
19	7.9	7.6	7.8	7.7	7.6	7.6	7.9	7.8	7.8	7.7	7.4	7.5
20	8.0	7.8	7.9	7.7	7.6	7.6	7.9	7.8	7.8	7.7	7.5	7.6
21	8.0	7.3	7.8	7.7	7.6	7.6	7.9	7.8	7.8	7.7	7.6	7.6
22	7.3	7.1	7.1	7.7	7.5	7.6	7.9	7.7	7.8	7.7	7.6	7.6
23	7.2	7.2	7.2	7.7	7.5	7.6	7.9	7.7	7.8	7.7	7.6	7.6
24	7.3	7.2	7.3	7.8	7.6	7.6	7.9	7.8	7.8	---	---	---
25	7.4	7.3	7.4	7.7	7.6	7.7	7.9	7.7	7.8	---	---	---
26	8.0	7.5	7.9	7.8	7.6	7.7	7.9	7.7	7.8	---	---	---
27	7.8	7.7	7.8	7.8	7.6	7.7	7.9	7.7	7.8	---	---	---
28	7.9	7.8	7.9	7.8	7.5	7.7	7.8	7.7	7.8	---	---	---
29	7.9	7.8	7.8	7.7	7.6	7.7	7.8	7.7	7.8	---	---	---
30	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.7	7.8	---	---	---
31	---	---	---	7.7	7.5	7.6	7.8	7.7	7.7	---	---	---
MONTH	---	---	---	7.8	7.5	7.6	8.0	7.2	7.8	---	---	---

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	7.6	7.5	7.6	7.6	7.4	7.5	7.5	7.5	7.5
2	---	---	---	7.6	6.5	7.2	7.6	7.4	7.5	7.6	7.5	7.5
3	---	---	---	7.5	7.3	7.4	7.4	7.2	7.3	7.5	7.5	7.5
4	---	---	---	7.5	7.4	7.4	7.3	7.1	7.2	7.5	7.5	7.5
5	---	---	---	7.6	7.4	7.5	7.2	7.1	7.2	7.5	7.5	7.5
6	---	---	---	7.6	7.6	7.6	7.2	7.1	7.2	7.5	7.4	7.5
7	---	---	---	7.7	7.6	7.7	7.2	7.2	7.2	7.5	7.4	7.5
8	---	---	---	7.7	7.6	7.7	7.3	7.2	7.2	7.5	7.4	7.5
9	---	---	---	7.7	7.7	7.7	7.4	7.2	7.3	7.5	7.5	7.5
10	---	---	---	7.7	7.4	7.7	7.4	7.3	7.4	7.5	7.5	7.5
11	---	---	---	7.8	6.9	7.6	7.5	7.3	7.4	7.5	7.5	7.5
12	---	---	---	7.5	6.8	7.1	7.5	7.3	7.4	7.5	7.5	7.5
13	7.6	7.5	7.5	7.3	6.8	7.1	7.5	7.4	7.4	7.5	7.4	7.5
14	7.5	7.5	7.5	7.4	7.0	7.3	7.5	7.4	7.5	7.5	7.4	7.5
15	7.5	7.4	7.5	7.6	7.5	7.5	7.5	7.3	7.5	7.5	7.4	7.5
16	7.5	7.4	7.5	7.6	7.6	7.6	7.5	7.3	7.5	7.5	7.4	7.5
17	7.5	7.4	7.4	7.7	7.6	7.6	7.5	7.4	7.5	7.5	7.4	7.5
18	7.4	7.4	7.4	7.7	7.6	7.6	7.5	7.4	7.5	7.5	7.3	7.4
19	7.4	7.4	7.4	7.7	7.6	7.7	7.5	7.3	7.5	7.5	7.3	7.4
20	7.4	7.4	7.4	7.7	7.0	7.4	7.5	7.4	7.5	7.5	7.3	7.4
21	7.4	7.3	7.3	7.2	7.0	7.2	7.5	7.4	7.5	7.5	7.3	7.4
22	7.4	7.3	7.3	8.1	7.2	7.8	7.5	7.4	7.5	7.4	7.3	7.4
23	7.4	7.4	7.4	8.0	8.0	8.0	7.6	7.5	7.5	7.5	7.3	7.4
24	7.5	7.4	7.5	8.0	7.9	7.9	7.6	7.5	7.5	7.4	7.3	7.4
25	7.5	7.5	7.5	7.9	7.7	7.8	7.6	7.5	7.5	7.4	7.3	7.4
26	7.5	7.5	7.5	7.8	7.6	7.6	7.6	7.5	7.5	7.4	7.3	7.4
27	7.5	7.5	7.5	7.7	7.4	7.6	7.6	7.5	7.6	7.4	7.3	7.4
28	7.6	7.5	7.5	7.6	7.4	7.5	7.6	7.5	7.6	7.4	7.2	7.3
29	7.6	7.5	7.6	7.6	7.4	7.5	7.6	7.5	7.6	7.4	7.2	7.3
30	7.6	7.6	7.6	7.6	7.5	7.6	7.6	7.6	7.6	7.3	7.0	7.2
31	7.6	7.5	7.5	---	---	---	7.6	7.5	7.6	7.3	7.1	7.2
MONTH	---	---	---	8.1	6.5	7.6	7.6	7.0	7.4	7.6	7.0	7.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.3	7.1	7.2	7.6	7.1	7.3	7.4	7.1	7.3	7.5	7.3	7.4
2	7.2	6.9	7.1	7.1	6.7	6.8	7.4	7.2	7.3	7.5	7.3	7.4
3	7.1	6.9	7.0	6.6	6.3	6.4	7.4	7.3	7.3	7.4	7.3	7.3
4	7.1	6.8	7.0	6.3	6.1	6.2	7.4	7.1	7.3	7.4	7.3	7.3
5	7.2	6.9	7.1	6.5	6.3	6.4	7.4	7.2	7.3	7.4	7.3	7.3
6	7.2	7.1	7.2	6.7	6.4	6.5	7.4	7.2	7.3	7.4	7.3	7.4
7	7.3	7.2	7.2	6.7	6.5	6.6	7.3	7.2	7.3	7.4	7.3	7.4
8	7.3	7.3	7.3	6.7	6.5	6.6	7.3	7.2	7.3	7.4	7.3	7.4
9	7.4	7.3	7.4	6.8	6.4	6.6	7.3	7.2	7.3	7.4	7.3	7.4
10	7.4	7.4	7.4	6.8	6.3	6.5	7.3	7.2	7.3	7.4	7.3	7.4
11	7.4	7.4	7.4	6.7	6.3	6.5	7.3	7.2	7.3	7.4	7.3	7.4
12	7.5	7.4	7.5	6.9	6.4	6.6	7.3	7.2	7.3	7.4	7.3	7.4
13	7.5	7.5	7.5	7.1	6.5	6.8	7.3	7.2	7.2	7.5	7.3	7.4
14	7.5	7.5	7.5	7.1	6.6	6.8	7.3	7.2	7.3	7.4	7.4	7.4
15	7.5	7.5	7.5	7.2	6.7	6.9	7.3	7.2	7.2	7.5	7.3	7.4
16	7.5	7.5	7.5	7.2	6.8	7.0	7.3	7.2	7.2	7.5	7.4	7.4
17	7.5	7.5	7.5	7.1	6.6	6.9	7.3	7.2	7.2	7.5	7.4	7.4
18	7.6	7.5	7.5	7.2	6.6	6.9	7.3	7.2	7.2	7.5	7.4	7.4
19	7.6	7.5	7.5	7.3	6.7	7.0	7.3	7.2	7.2	7.5	7.4	7.4
20	7.6	7.5	7.6	7.2	6.8	7.0	7.2	7.2	7.2	7.6	7.4	7.5
21	7.6	7.5	7.6	7.3	6.9	7.1	7.3	7.2	7.2	7.6	7.5	7.5
22	7.6	7.6	7.6	6.9	6.7	6.8	7.3	7.2	7.3	7.6	7.5	7.5
23	7.6	7.6	7.6	6.9	6.6	6.7	7.3	7.2	7.3	7.7	7.5	7.6
24	7.6	7.6	7.6	7.0	6.7	6.8	7.3	7.2	7.3	7.7	7.5	7.6
25	7.8	7.6	7.7	6.8	6.6	6.7	7.3	7.2	7.3	7.7	7.5	7.6
26	7.8	7.6	7.7	6.7	6.5	6.6	7.3	7.2	7.3	7.7	7.5	7.6
27	7.7	7.6	7.7	6.7	6.5	6.6	7.3	7.2	7.3	7.7	7.5	7.6
28	7.7	7.5	7.6	7.0	6.6	6.8	7.4	7.2	7.3	7.7	7.5	7.6
29	---	---	---	6.9	6.7	6.8	7.4	7.2	7.3	7.7	7.6	7.6
30	---	---	---	7.2	6.7	6.9	7.4	7.3	7.3	7.7	7.6	7.6
31	---	---	---	7.3	6.9	7.1	---	---	---	7.7	7.6	7.6
MONTH	7.8	6.8	7.4	7.6	6.1	6.8	7.4	7.1	7.3	7.7	7.3	7.5

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.7	7.6	7.6	7.8	7.6	7.7	7.7	7.5	7.6	7.7	7.6	7.6
2	7.7	7.6	7.6	7.8	7.6	7.7	7.7	7.5	7.6	7.8	7.6	7.7
3	7.7	7.6	7.6	7.8	7.6	7.7	7.8	7.5	7.6	7.8	7.6	7.7
4	7.7	7.6	7.6	7.8	7.6	7.7	7.8	7.5	7.6	7.8	7.6	7.7
5	7.7	7.6	7.6	7.8	7.6	7.7	7.9	7.5	7.6	7.8	7.6	7.7
6	7.7	7.5	7.6	7.8	7.6	7.7	7.9	7.5	7.6	7.8	7.6	7.7
7	7.7	7.5	7.6	7.8	7.6	7.7	7.8	7.5	7.6	7.8	7.6	7.7
8	7.7	7.6	7.6	7.7	7.6	7.6	7.8	7.5	7.6	7.8	7.6	7.7
9	7.7	7.6	7.6	7.8	7.6	7.6	7.7	7.5	7.6	7.7	7.6	7.7
10	7.7	7.6	7.6	7.8	7.6	7.6	7.7	7.5	7.6	7.8	7.6	7.7
11	7.7	7.6	7.6	7.7	7.6	7.6	7.9	7.5	7.6	7.8	7.7	7.7
12	7.7	7.6	7.7	7.7	7.6	7.6	8.0	7.4	7.6	7.8	7.7	7.7
13	7.7	7.6	7.7	7.7	7.6	7.6	8.0	7.4	7.6	7.8	7.7	7.7
14	7.8	7.6	7.7	7.7	7.6	7.6	8.2	7.4	7.6	7.8	7.4	7.7
15	7.8	7.6	7.7	7.7	7.5	7.6	8.2	7.4	7.6	7.8	7.7	7.7
16	7.8	7.6	7.7	7.7	7.5	7.6	8.2	7.4	7.5	7.8	7.7	7.7
17	7.8	7.6	7.7	7.7	7.5	7.6	8.2	7.4	7.6	7.8	7.7	7.7
18	7.8	7.6	7.7	7.7	7.5	7.6	8.1	7.4	7.5	7.9	7.4	7.8
19	7.8	7.7	7.7	7.7	7.5	7.6	7.9	7.4	7.5	7.8	7.7	7.8
20	7.8	7.7	7.7	7.7	7.5	7.6	7.7	7.3	7.4	7.8	7.7	7.7
21	7.8	7.7	7.7	7.7	7.5	7.6	8.1	7.4	7.5	7.9	7.7	7.8
22	7.8	7.7	7.7	7.7	7.5	7.6	8.1	7.3	7.5	7.9	7.7	7.7
23	7.8	7.7	7.7	7.7	7.6	7.6	8.0	7.3	7.5	7.9	7.7	7.8
24	7.8	7.7	7.7	7.7	7.6	7.6	7.7	7.3	7.4	7.9	7.7	7.8
25	8.0	7.7	7.7	7.7	7.6	7.6	8.0	7.3	7.4	7.9	7.7	7.8
26	7.8	7.7	7.7	7.7	7.5	7.6	7.9	7.3	7.4	7.9	7.8	7.8
27	7.8	7.6	7.7	7.8	7.5	7.6	7.6	7.3	7.4	7.9	7.8	7.8
28	7.8	7.7	7.7	7.8	7.5	7.6	7.8	7.3	7.4	7.9	7.8	7.8
29	7.8	7.7	7.7	7.8	7.5	7.6	7.7	7.3	7.5	7.9	7.8	7.8
30	7.8	7.7	7.7	7.8	7.5	7.6	7.7	7.5	7.6	7.9	7.8	7.8
31	---	---	---	7.8	7.5	7.6	7.7	7.6	7.6	---	---	---
MONTH	8.0	7.5	7.7	7.8	7.5	7.6	8.2	7.3	7.5	7.9	7.4	7.7

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12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1				---	---	---	20.0	15.0	17.5	13.5	9.5	11.5
2				---	---	---	20.0	16.5	18.0	13.5	8.5	11.0
3				---	---	---	20.5	16.0	18.0	15.0	10.0	12.0
4				---	---	---	20.5	16.0	18.0	15.0	10.0	12.5
5				---	---	---	20.0	16.5	18.0	15.0	11.5	13.5
6				---	---	---	18.5	14.5	16.5	13.0	10.0	11.5
7				---	---	---	18.5	12.5	15.5	12.0	7.5	10.0
8				---	---	---	19.5	14.0	16.5	15.0	11.5	13.0
9				---	---	---	20.5	14.5	17.5	13.5	9.5	11.5
10				---	---	---	19.5	16.5	17.5	12.5	9.0	11.0
11				---	---	---	20.0	15.0	17.0	11.5	9.0	10.0
12				---	---	---	19.5	16.0	17.5	11.5	7.0	9.0
13				---	---	---	17.5	13.0	15.0	12.0	6.5	9.0
14				---	---	---	17.0	11.5	14.0	11.5	6.5	9.0
15				---	---	---	17.5	12.0	14.5	12.0	8.0	10.0
16				---	---	---	18.0	12.5	15.0	12.5	8.0	10.5
17				---	---	---	19.0	13.5	16.0	13.5	9.0	11.0
18				18.5	---	---	18.0	12.5	15.5	14.5	9.5	12.0
19				17.5	12.5	15.0	16.0	11.0	13.5	14.0	9.5	12.0
20				16.5	11.5	14.0	16.0	10.5	13.0	13.0	11.5	12.5
21				16.0	11.0	13.5	16.5	10.5	13.5	11.0	8.5	10.0
22				16.0	10.5	13.5	17.0	11.5	14.0	9.0	8.0	8.5
23				17.0	12.0	14.5	17.5	11.5	14.0	9.0	7.0	8.5
24				17.5	13.0	15.5	17.0	10.0	13.0	8.5	4.5	6.5
25				20.0	14.0	17.0	18.0	9.5	13.5	9.0	5.5	7.5
26				19.5	15.5	17.5	17.0	11.0	14.0	9.5	7.5	8.5
27				20.0	16.0	18.0	15.5	11.0	13.5	8.5	5.5	7.0
28				20.0	15.5	17.5	13.0	9.0	11.0	7.5	4.0	6.0
29				18.5	16.5	17.5	13.5	8.0	11.0	8.0	4.0	6.0
30				19.5	15.5	17.5	13.5	9.0	11.5	8.5	5.0	7.0
31				20.0	15.5	17.5	14.0	11.0	12.5	---	---	---
MONTH				---	---	---	20.5	8.0	15.0	15.0	4.0	10.0

12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.0	5.5	7.0	1.0	.0	.5	1.5	.5	1.0	.0	.0	.0
2	9.5	6.0	7.5	3.5	1.0	2.0	1.0	.0	.5	.0	.0	.0
3	10.0	6.5	8.0	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
4	10.0	7.5	8.5	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
5	8.5	6.0	7.5	3.0	1.5	2.5	.0	.0	.0	.5	.0	.5
6	9.5	7.0	8.0	4.0	2.5	3.5	.0	.0	.0	.5	.0	.5
7	10.0	7.5	8.5	4.0	2.5	3.0	.5	.0	.5	.5	.0	.5
8	10.5	8.0	9.0	3.5	1.5	2.5	1.0	.5	1.0	.5	.0	.5
9	10.5	8.5	9.5	4.0	2.5	3.0	1.0	1.0	1.0	.5	.5	.5
10	11.0	9.0	10.0	4.0	2.5	3.0	1.0	1.0	1.0	1.0	.5	.5
11	10.5	9.0	10.0	5.0	3.0	4.0	1.0	.5	1.0	1.0	.5	.5
12	8.5	7.5	8.0	5.5	4.5	5.0	1.0	1.0	1.0	1.0	1.0	1.0
13	8.0	5.5	7.0	6.0	4.5	5.0	1.0	.5	1.0	1.0	.5	1.0
14	7.0	3.5	5.0	4.5	2.0	3.0	1.5	1.0	1.0	.5	.5	.5
15	6.0	3.5	5.0	2.0	1.0	2.0	1.5	.5	1.0	1.0	.5	1.0
16	6.5	4.0	5.0	3.0	2.0	2.5	1.0	.0	.5	1.0	1.0	1.0
17	5.0	2.0	3.5	3.0	2.0	2.5	1.0	.0	.5	1.0	1.0	1.0
18	4.0	1.5	2.5	3.5	2.5	3.0	.0	.0	.0	1.0	1.0	1.0
19	3.5	1.0	2.5	4.0	3.5	4.0	.0	.0	.0	1.5	1.0	1.0
20	3.5	1.0	2.0	4.5	3.5	4.0	.0	.0	.0	1.0	.5	1.0
21	3.0	.5	1.5	4.0	3.5	3.5	.5	.0	.0	1.5	1.0	1.0
22	3.0	.5	1.5	3.5	3.0	3.5	1.0	.5	.5	1.5	1.0	1.0
23	2.5	1.0	2.0	3.5	2.0	2.5	1.0	.5	1.0	1.5	1.0	1.0
24	4.0	2.5	3.0	3.0	2.0	2.5	1.0	.5	.5	1.5	1.0	1.0
25	6.5	4.0	5.0	2.5	1.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0
26	5.0	2.5	4.0	2.0	1.5	2.0	1.0	1.0	1.0	1.0	1.0	1.0
27	3.5	1.0	2.5	1.5	.5	1.0	1.0	1.0	1.0	1.0	.5	1.0
28	4.5	3.0	4.0	1.5	.5	1.0	1.0	.0	.5	1.5	.5	1.0
29	3.5	2.0	2.5	1.5	1.0	1.5	1.0	.0	.5	1.0	.5	1.0
30	4.0	2.0	3.0	1.5	1.0	1.5	1.0	.5	.5	1.0	.5	1.0
31	2.0	.0	.5	---	---	---	.5	.0	.0	1.0	.5	1.0
MONTH	11.0	.0	5.5	6.0	.0	3.0	1.5	.0	.5	1.5	.0	.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.0	1.0	1.5	1.5	1.0	1.5	5.5	3.5	4.5	12.5	7.0	10.0
2	1.5	.5	1.0	2.0	1.0	1.5	5.5	3.0	4.0	13.0	8.5	11.0
3	1.0	.5	1.0	1.5	.5	1.0	5.5	3.5	4.5	11.0	7.0	9.0
4	1.0	.5	1.0	1.5	1.0	1.5	5.5	2.5	4.0	9.0	5.0	7.0
5	1.0	.0	.0	2.0	1.5	1.5	6.5	3.0	5.0	10.0	4.5	7.5
6	1.0	.0	.5	2.0	1.0	1.5	7.0	3.5	5.5	11.5	6.5	9.0
7	1.5	.5	.5	2.0	.5	1.5	7.5	4.0	6.0	12.0	8.0	10.0
8	1.5	1.0	1.5	2.0	.5	1.5	8.0	5.0	6.5	11.0	8.0	9.5
9	1.5	1.0	1.5	2.5	1.0	1.5	8.0	5.0	6.5	12.0	6.0	9.0
10	1.5	1.0	1.5	3.0	1.5	2.0	10.5	5.5	7.5	10.5	6.5	9.0
11	1.5	1.0	1.0	3.0	1.0	1.5	9.0	6.0	7.5	9.0	6.0	7.5
12	1.5	1.0	1.5	3.0	1.0	2.0	10.5	5.5	8.0	11.0	4.5	7.5
13	1.5	1.5	1.5	3.5	1.5	2.0	11.0	5.5	8.5	11.0	6.0	8.5
14	1.5	1.5	1.5	3.5	1.5	2.5	11.5	6.5	9.0	11.0	9.0	10.0
15	1.5	1.5	1.5	4.0	1.5	2.5	10.5	7.0	9.0	14.0	7.0	10.5
16	1.5	1.0	1.5	4.5	2.0	2.5	9.0	7.5	8.5	15.5	9.5	12.5
17	1.5	1.0	1.5	4.5	2.0	3.0	10.0	5.5	8.0	16.0	10.0	13.0
18	1.5	1.0	1.5	4.5	2.5	3.0	9.0	7.0	8.0	16.0	10.5	13.5
19	1.0	1.0	1.0	4.5	2.5	3.0	9.0	6.0	7.5	16.0	11.0	13.5
20	1.5	1.0	1.0	4.5	2.5	3.0	7.5	3.5	5.5	16.0	11.0	13.5
21	1.0	1.0	1.0	4.5	2.0	3.0	8.0	3.5	6.0	16.5	11.5	14.0
22	1.5	1.0	1.0	3.0	1.5	2.5	9.0	5.5	7.0	17.5	12.0	14.5
23	1.5	1.0	1.0	3.5	2.5	3.0	8.5	6.0	7.0	18.0	12.5	15.5
24	1.5	.5	1.0	4.5	2.0	3.0	9.0	4.0	6.5	16.5	13.5	15.0
25	1.5	.5	1.0	4.5	1.5	3.0	9.5	4.0	7.0	16.0	11.0	13.5
26	1.5	.5	1.0	4.0	2.0	3.0	7.0	4.5	6.0	16.5	11.0	13.5
27	1.5	.5	1.0	3.5	2.5	3.0	9.5	6.5	8.0	15.5	12.0	13.5
28	1.5	1.0	1.0	5.0	2.5	3.5	11.5	7.5	9.5	14.5	12.5	13.5
29	---	---	---	5.0	2.0	3.5	11.0	5.5	8.5	13.5	11.0	12.0
30	---	---	---	4.5	2.5	3.0	12.0	5.5	9.0	12.5	10.5	11.5
31	---	---	---	6.0	2.5	4.0	---	---	---	14.5	9.5	12.0
MONTH	2.0	.0	1.0	6.0	.5	2.5	12.0	2.5	7.0	18.0	4.5	11.5

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12433558 BLUE CREEK BELOW MIDNITE MINE DRAINAGE, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.0	11.0	13.0	17.5	12.0	15.0	17.5	15.0	16.5	12.5	9.5	11.0
2	12.5	11.0	11.5	19.0	12.5	16.0	18.5	15.0	16.5	15.0	10.5	12.5
3	14.5	9.5	12.0	20.0	14.0	17.0	18.5	13.5	16.0	14.5	10.0	12.5
4	15.0	12.5	13.5	20.0	14.5	17.0	18.0	13.5	15.5	15.0	10.0	12.5
5	13.0	11.0	12.0	19.5	14.5	16.5	18.5	13.5	15.5	13.5	11.0	12.0
6	11.5	10.0	11.0	19.0	13.0	16.0	18.0	12.0	15.0	14.0	10.0	12.5
7	12.5	11.0	11.5	20.0	14.0	17.0	16.5	13.0	14.5	12.5	8.0	10.5
8	14.0	9.5	11.5	20.5	14.5	17.5	15.0	12.5	13.5	12.5	10.5	11.5
9	14.0	9.5	12.0	21.5	15.5	18.5	14.0	10.5	12.5	12.0	11.0	11.5
10	15.0	9.5	12.0	21.5	16.0	18.5	14.5	11.5	13.0	13.5	11.0	12.0
11	16.0	10.5	13.0	19.5	14.5	17.0	16.0	10.0	13.5	12.0	10.5	11.5
12	17.0	12.0	14.5	19.5	14.0	16.5	15.5	11.5	13.5	12.5	10.0	11.5
13	15.5	12.0	13.5	19.0	13.0	16.0	15.5	10.0	13.0	12.5	9.0	11.0
14	15.5	12.5	14.0	19.0	13.0	16.0	16.5	10.5	13.5	12.5	7.5	11.0
15	16.5	12.0	14.0	19.5	13.5	16.5	16.5	11.5	13.5	12.0	9.5	10.5
16	16.0	11.0	13.5	19.5	13.5	16.5	16.0	10.0	13.0	11.0	9.0	10.0
17	16.5	10.5	13.5	19.5	14.0	17.0	16.5	10.0	13.0	11.0	9.5	10.5
18	18.0	12.0	15.0	20.0	14.0	17.0	17.0	10.0	13.5	11.0	8.0	9.5
19	18.5	13.0	15.5	20.0	13.5	16.5	16.0	12.0	14.0	11.0	7.5	9.5
20	17.5	13.0	15.0	20.0	14.0	17.0	13.5	11.0	12.5	10.5	6.5	9.0
21	17.5	11.5	14.5	20.5	14.0	17.0	15.0	11.0	12.5	11.0	7.5	9.5
22	16.5	11.5	14.0	19.5	14.5	17.0	15.5	9.5	12.5	10.0	6.0	8.0
23	15.5	10.5	13.0	20.0	14.5	17.0	15.5	9.5	12.5	9.5	5.5	7.5
24	14.0	9.0	12.0	19.5	13.5	16.5	15.5	11.0	13.5	11.0	7.0	9.0
25	15.5	9.5	13.0	19.5	13.5	16.5	17.5	12.5	14.5	10.5	6.5	8.5
26	16.5	11.0	13.5	19.5	13.0	16.5	17.0	11.0	14.0	11.0	7.5	9.0
27	17.0	11.5	14.0	18.5	12.5	15.5	15.5	11.0	13.0	10.0	6.5	8.0
28	17.5	12.0	14.5	19.5	12.5	16.0	16.0	11.5	13.5	8.0	4.5	6.0
29	18.0	12.5	15.0	20.0	14.0	17.0	16.0	10.0	12.5	7.5	3.5	5.5
30	17.5	12.5	15.0	20.5	15.0	17.5	14.5	10.5	12.5	8.0	4.0	6.0
31	---	---	---	19.0	14.5	17.0	14.0	8.5	11.0	---	---	---
MONTH	18.5	9.0	13.5	21.5	12.0	16.5	18.5	8.5	13.5	15.0	3.5	10.0
YEAR	21.5	.0	7.0									

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA

LOCATION.--Lat 47°53'49", long 118°08'05", Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank, 0.75 mi upstream from Franklin D. Roosevelt Lake, and 7.0 mi west of Wellpinit.

DRAINAGE AREA.--19.1 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,340 ft, from topographic map.

REMARKS.--

JUNE TO SEPTEMBER 1984.--No estimated daily discharges. Water-discharge records good. No regulation or diversion upstream from station. See station number 12433558 for retention pond details.

WATER YEAR 1985.--Estimated daily discharges: Oct. 24 to Mar. 14. Water-discharge records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. See station number 12433558 for retention pond details.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17 ft^3/s Apr. 4-6, 1985, gage height, 2.82 ft; minimum, no flow for several days in July, August, September 1985.

EXTREMES FOR CURRENT PERIOD.--

JUNE TO SEPTEMBER 1984.--Maximum discharge during period, 7.1 ft^3/s June 21, gage height, 2.56 ft; minimum, 0.18 ft^3/s Aug. 27, 28.

WATER YEAR 1985.--Maximum discharge, 17 ft^3/s Apr. 4-6, gage height, 2.82 ft; minimum, no flow for several days in July, August, September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									---	1.6	.54	.27
2									---	1.5	.81	.26
3									---	1.4	.55	.26
4									---	1.3	.51	.24
5									---	1.2	.50	.23
6									---	1.2	.44	.31
7									---	1.1	.41	.26
8									---	1.1	.40	.27
9									---	1.1	.39	.26
10									---	.98	.36	.26
11									---	.95	.32	.28
12									---	.89	.30	.30
13									---	.85	.29	.29
14									---	.82	.30	.27
15									---	.77	.29	.27
16									2.6	.73	.27	.27
17									2.5	.70	.26	.26
18									2.4	.66	.26	.23
19									2.3	.61	.26	.22
20									2.3	.58	.25	.30
21									4.7	.56	.25	.29
22									3.8	.56	.24	.30
23									3.2	.60	.23	.34
24									2.9	.56	.25	.31
25									2.6	.53	.25	.31
26									2.4	.51	.24	.31
27									2.2	.47	.22	.30
28									2.1	.45	.24	.30
29									1.9	.60	.26	.33
30									1.7	.55	.27	.34
31									---	.48	.28	---
TOTAL									---	25.91	10.44	8.44
MEAN									---	.84	.34	.28
MAX									---	1.6	.81	.34
MIN									---	.45	.22	.22
AC-FT									---	51	21	17

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	1.0	.90	.68	.56	.94	8.9	5.1	1.6	.40	.11	.01
2	.32	1.4	.88	.68	.50	.96	11	4.9	1.7	.39	.16	.12
3	.32	1.1	.84	.70	.45	.98	13	4.7	1.6	.36	.14	.10
4	.31	.80	.86	.72	.45	1.0	14	4.5	1.4	.34	.11	.10
5	.31	.60	.88	.72	.48	1.0	16	4.3	1.3	.30	.11	.09
6	.34	.56	.90	.74	.52	1.1	15	4.2	1.4	.29	.08	.09
7	.35	.54	.90	.74	.56	1.1	15	4.0	1.8	.29	.06	.10
8	.34	.50	.90	.78	.58	1.1	15	3.9	1.4	.25	.12	.14
9	.33	.43	.90	.80	.64	1.2	15	3.7	1.2	.22	.19	.32
10	.34	.47	.92	.78	.64	1.2	15	3.7	1.1	.20	.19	.35
11	.42	.56	.92	.78	.68	1.2	14	3.5	1.0	.20	.19	.30
12	.45	.62	.92	.78	.70	1.2	13	3.4	.93	.20	.18	.32
13	.43	.66	.92	.78	.72	1.3	12	3.3	.88	.19	.13	.22
14	.41	.70	.92	.78	.72	1.4	11	3.5	.87	.19	.11	.42
15	.43	.68	.90	.78	.74	1.4	11	3.2	.91	.18	.08	.36
16	.43	.64	.86	.80	.74	1.8	10	2.9	.89	.16	.06	.23
17	.43	.54	.76	.82	.72	2.2	9.5	2.7	.85	.16	.07	.43
18	.43	.45	.64	.84	.72	2.8	8.8	2.5	.79	.15	.04	.39
19	.43	.52	.55	.86	.72	5.3	8.3	2.4	.74	.14	.02	.48
20	.43	.66	.60	.86	.74	6.8	8.2	2.2	.67	.12	.06	.24
21	.43	.62	.70	.86	.76	7.6	7.7	2.1	.63	.11	.10	.22
22	.42	.58	.78	.86	.78	6.7	7.3	2.0	.60	.10	.13	.17
23	.44	.56	.82	.84	.80	6.5	7.5	1.9	.59	.09	.11	.16
24	.45	.60	.82	.84	.80	6.5	7.0	2.0	.58	.09	.08	.14
25	.49	.70	.84	.84	.83	6.2	6.8	1.8	.58	.08	.07	.14
26	.49	1.0	.82	.82	.86	6.0	6.6	1.6	.55	.08	.00	.13
27	.48	1.4	.80	.82	.88	5.9	6.4	1.6	.52	.06	.00	.12
28	.48	1.7	.78	.80	.90	5.8	6.0	1.8	.49	.05	.00	.12
29	.48	1.3	.74	.74	---	6.1	5.6	1.9	.46	.02	.00	.14
30	.49	1.1	.70	.66	---	6.7	5.2	1.9	.43	.00	.00	.16
31	.66	---	.68	.60	---	7.2	---	1.7	---	.01	.00	---
TOTAL	12.88	22.99	25.35	24.10	19.19	107.18	309.8	92.9	28.46	5.42	2.70	6.31
MEAN	.42	.77	.82	.78	.69	3.46	10.3	3.00	.95	.17	.09	.21
MAX	.66	1.7	.92	.86	.90	7.6	16	5.1	1.8	.40	.19	.48
MIN	.31	.43	.55	.60	.45	.94	5.2	1.6	.43	.00	.00	.01
AC-FT	26	46	50	48	38	213	614	184	56	11	5.4	13

WTR YR 1985 TOTAL 657.28 MEAN 1.80 MAX 16 MIN .00 AC-FT 1300

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12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1984 to current year.
pH: June 1984 to current year.
WATER TEMPERATURES: June 1984 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1984. Digital recorder set for one-hour-interval punch.

REMARKS.--Miscellaneous samples collected 1980.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,330 microsiemens Sept. 26, 27, 1985; minimum, 225 microsiemens Apr. 10, 1985.
pH: Maximum, 9.0 units May 20, 21, 23, 1985; minimum, 7.0 units July 31, 1985.
WATER TEMPERATURES: Maximum, 27.5°C July 9, 10, 1985; minimum, 0.0°C during many days from October to February 1985.

EXTREMES FOR CURRENT YEAR.--
JUNE TO SEPTEMBER 1984.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,130 microsiemens Sept. 1; minimum recorded, 425 microsiemens June 22.
pH: Maximum recorded, 8.3 units June 20, July 3-6; minimum recorded, 7.2 units Sept. 5, 25, 26, 29, 30.
WATER TEMPERATURES: Maximum recorded, 24.0°C July 25-28, 30, 31, Aug. 2, 9; minimum recorded, 4.0°C Sept. 28, 29.

WATER YEAR 1985.--
SPECIFIC CONDUCTANCE: Maximum, 1,330 microsiemens Sept. 26, 27; minimum, 225 microsiemens Apr. 10.
pH: Maximum, 9.0 units May 20, 21, 23; minimum, 7.0 units July 31.
WATER TEMPERATURES: Maximum, 27.5°C July 9, 10; minimum, 0.0°C during many days from October to February.

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	660	640	650	935	845	900	1130	1090	1110
2	---	---	---	730	640	670	855	805	835	1120	1100	1110
3	---	---	---	688	638	664	---	---	---	1120	1100	1110
4	---	---	---	720	640	670	---	---	---	1110	1090	1100
5	---	---	---	702	652	682	---	---	---	1120	1050	1100
6	---	---	---	734	674	696	---	---	---	1110	1070	1100
7	---	---	---	756	676	710	---	---	---	1110	1090	1100
8	---	---	---	748	708	721	1000	954	973	1110	1080	1100
9	---	---	---	750	710	728	1010	973	987	1110	1100	1110
10	---	---	---	753	723	736	1020	982	1000	1110	1100	1110
11	---	---	---	766	726	746	1030	991	1010	1120	1100	1110
12	---	---	---	800	690	755	1040	1000	1020	1110	1090	1100
13	---	---	---	792	752	771	1040	1010	1020	1110	1080	1100
14	---	---	---	794	754	775	1060	1010	1030	1110	1080	1100
15	---	---	---	806	766	785	1070	1020	1040	1110	1100	1100
16	---	---	---	818	778	798	1060	1030	1040	1110	1010	1100
17	586	546	570	820	780	800	1080	1040	1050	1110	1060	1090
18	606	556	584	853	793	817	1070	1030	1050	1100	1080	1090
19	605	575	591	855	795	829	1070	1030	1050	1100	900	1080
20	615	555	595	867	817	841	1080	1040	1060	1090	988	1070
21	615	435	526	899	839	861	1090	1040	1070	1110	976	1070
22	535	425	491	891	841	864	1090	1050	1070	1080	1060	1070
23	555	535	551	893	843	870	1090	1060	1070	1100	1000	1080
24	585	545	571	895	845	873	1090	1070	1080	1080	1070	1070
25	615	575	594	895	845	875	1110	1070	1090	1090	1050	1080
26	634	584	609	915	855	885	1100	1080	1090	1100	1060	1090
27	644	594	624	925	875	900	1110	1080	1090	1110	1090	1100
28	664	614	640	925	875	905	1120	1080	1100	1110	1070	1100
29	643	603	621	925	875	895	1110	1090	1100	1100	1070	1090
30	660	600	630	915	875	895	1110	1080	1100	1100	1080	1090
31	---	---	---	935	885	905	1110	1090	1100	---	---	---
MONTH	---	---	---	935	638	793	---	---	---	1130	900	1090

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1110	1080	1100	1070	1020	1040	733	673	710	885	795	858
2	1110	1080	1090	1020	758	887	834	624	732	883	833	851
3	1100	1070	1080	886	736	827	856	756	820	882	832	855
4	1100	1060	1090	923	833	896	867	787	845	891	841	863
5	1100	1050	1090	951	841	916	909	839	870	880	820	854
6	1100	1080	1090	959	849	935	920	840	896	859	769	840
7	1110	1060	1090	967	867	941	912	852	880	868	788	845
8	1100	1070	1090	965	835	899	893	823	855	876	826	842
9	1090	1040	1080	952	832	892	845	755	817	865	815	838
10	1100	1070	1090	950	840	897	836	756	803	854	774	827
11	1100	1080	1090	898	778	838	848	788	819	883	773	826
12	1100	1050	1080	846	736	780	839	789	822	862	772	820
13	1070	1050	1060	794	684	748	851	801	822	871	761	840
14	1080	1070	1070	861	671	769	852	792	824	849	769	814
15	1100	1070	1090	839	739	805	854	754	819	858	768	818
16	1100	1070	1090	887	827	864	855	815	835	857	807	825
17	1100	1060	1090	895	805	874	867	777	848	856	796	825
18	1130	1010	1080	893	773	839	898	818	861	855	775	820
19	1120	1040	1090	860	710	800	910	860	888	834	764	800
20	1110	1020	1060	818	698	766	909	829	890	842	802	814
21	1130	1000	1070	756	626	708	908	828	871	821	731	774
22	1140	1040	1080	784	694	757	886	806	864	800	740	769
23	1080	1040	1060	802	712	749	875	825	852	829	749	805
24	1080	1030	1050	739	629	694	884	804	850	818	708	766
25	1070	1030	1050	737	677	710	873	833	855	817	727	787
26	1040	943	1020	805	665	749	872	812	842	815	715	770
27	1060	951	1030	786	706	753	861	781	839	794	734	775
28	1050	979	1040	758	678	710	849	789	834	803	753	778
29	1050	927	1020	740	660	692	878	798	850	823	743	784
30	1040	994	1020	731	671	700	867	807	851	834	754	797
31	1070	1010	1030	---	---	---	886	826	859	874	784	836
MONTH	1140	927	1070	1070	626	815	920	624	839	891	708	817

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	874	794	840	675	575	615	371	311	353	425	405	412
2	885	825	858	624	574	597	324	284	305	425	416	419
3	905	865	883	642	572	598	286	276	283	436	426	430
4	925	815	895	630	580	602	289	229	264	446	426	435
5	915	805	869	629	569	610	262	232	242	446	426	439
6	886	836	860	637	567	615	244	234	239	456	436	443
7	856	816	833	645	585	616	247	227	242	456	437	448
8	836	776	811	624	604	612	249	229	237	467	447	457
9	827	787	805	632	572	601	242	232	237	477	457	464
10	837	777	809	650	570	603	245	225	236	487	467	475
11	797	757	785	599	549	582	247	237	240	487	477	482
12	818	768	794	617	537	586	260	240	250	497	477	485
13	818	758	792	625	535	571	283	253	263	498	488	491
14	828	728	788	574	494	543	285	265	271	498	478	488
15	829	729	779	562	492	527	298	278	284	498	478	485
16	819	729	777	560	480	505	321	281	293	508	488	500
17	799	719	768	539	459	501	323	293	300	518	498	512
18	810	770	795	527	447	483	316	306	314	529	519	525
19	810	710	781	525	425	477	329	318	325	539	519	534
20	800	760	785	514	394	437	341	331	335	549	529	542
21	801	741	779	442	342	370	354	334	344	559	539	550
22	791	731	765	455	365	394	356	336	347	569	549	558
23	791	721	758	457	387	421	359	339	347	579	549	563
24	772	702	736	450	400	417	362	352	355	588	549	553
25	752	682	720	453	392	419	414	354	372	588	558	573
26	710	630	682	445	415	425	427	367	385	608	568	585
27	709	619	660	438	418	430	400	370	383	608	588	593
28	687	587	629	440	420	434	422	382	387	598	578	586
29	---	---	---	433	413	424	415	385	399	618	568	591
30	---	---	---	456	406	419	415	395	406	608	558	587
31	---	---	---	438	368	404	---	---	---	618	588	603
MONTH	925	587	787	675	342	511	427	225	308	618	405	510

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	628	598	613	824	774	800	986	926	959	---	---	---
2	627	597	608	844	784	809	1010	979	993	1210	1190	1200
3	627	597	607	833	793	815	1010	992	999	1200	1170	1180
4	627	597	615	833	768	806	1010	984	996	1200	1170	1190
5	647	607	626	853	793	833	1020	997	1000	1190	1180	1190
6	637	617	627	863	813	836	1020	979	1000	1210	1170	1190
7	617	587	603	873	823	848	1010	982	997	1220	1190	1210
8	637	597	615	872	832	851	1030	975	1010	1240	1210	1220
9	657	617	632	872	832	852	1050	1030	1040	1260	1220	1250
10	667	627	647	882	842	858	1070	1050	1060	1260	1240	1260
11	666	636	651	882	842	861	1130	1060	1070	1260	1220	1250
12	686	646	661	882	842	863	1090	1080	1080	1270	1240	1250
13	696	656	672	892	862	873	1090	1060	1080	1270	1250	1260
14	696	656	675	901	861	879	1090	1060	1080	1260	1200	1230
15	716	656	682	901	871	885	1080	1050	1070	1250	1200	1230
16	716	676	692	901	871	888	1090	1050	1070	1260	1230	1240
17	716	660	685	911	881	893	1090	1060	1080	1280	1160	1230
18	726	686	709	911	881	896	1080	1040	1070	1320	1140	1280
19	746	696	718	913	890	901	1070	1050	1060	1300	1190	1250
20	745	705	728	910	890	900	1100	1060	1090	1270	1230	1250
21	765	715	740	910	890	902	1130	1070	1100	1300	1250	1270
22	765	735	750	910	890	900	1130	1100	1120	1300	1280	1300
23	775	745	759	923	893	906	1130	1100	1110	1310	1290	1310
24	785	755	769	925	895	910	1130	1090	1110	1320	1300	1310
25	795	755	773	928	898	916	1130	1100	1120	1320	1310	1320
26	815	735	774	940	910	922	---	---	---	1330	1310	1320
27	804	754	777	933	913	924	---	---	---	1330	1310	1320
28	824	744	789	946	916	930	---	---	---	1320	1300	1310
29	824	784	799	938	898	922	---	---	---	1320	1300	1310
30	824	794	804	931	891	914	---	---	---	1320	1300	1320
31	---	---	---	934	894	910	---	---	---	---	---	---
MONTH	824	587	693	946	768	878	---	---	---	---	---	---

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12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	8.1	7.7	8.0	7.6	7.4	7.5	7.8	7.4	7.6
2	---	---	---	8.1	7.7	7.9	7.6	7.4	7.5	7.7	7.4	7.5
3	---	---	---	8.3	7.8	8.0	---	---	---	7.8	7.4	7.5
4	---	---	---	8.3	8.0	8.1	---	---	---	7.8	7.4	7.5
5	---	---	---	8.3	7.9	8.1	---	---	---	8.0	7.2	7.5
6	---	---	---	8.3	7.9	8.1	---	---	---	7.7	7.3	7.5
7	---	---	---	8.2	7.9	8.1	7.9	---	---	7.7	7.3	7.5
8	---	---	---	8.2	7.9	8.0	7.9	7.7	7.8	7.7	7.3	7.4
9	---	---	---	8.2	7.8	7.9	7.9	7.7	7.8	7.6	7.4	7.5
10	---	---	---	8.1	7.8	7.9	8.0	7.6	7.8	7.7	7.4	7.5
11	---	---	---	8.0	7.7	7.8	8.0	7.7	7.8	7.8	7.4	7.5
12	---	---	---	8.0	7.7	7.8	7.9	7.7	7.8	7.6	7.4	7.5
13	---	---	---	7.9	7.7	7.8	7.9	7.7	7.8	7.7	7.4	7.5
14	---	---	---	8.0	7.7	7.8	7.0	7.7	7.8	7.7	7.4	7.5
15	---	---	---	8.0	7.6	7.8	7.9	7.7	7.8	7.7	7.4	7.5
16	---	---	---	7.9	7.4	7.7	7.9	7.7	7.8	7.7	7.4	7.5
17	8.1	7.9	8.0	7.7	7.4	7.6	8.0	7.7	7.8	7.7	7.4	7.5
18	8.2	7.9	8.0	7.7	7.5	7.6	8.1	7.7	7.8	7.8	7.4	7.5
19	8.2	7.9	8.0	7.7	7.5	7.6	8.0	7.7	7.8	7.7	7.4	7.5
20	8.3	7.9	8.1	7.8	7.5	7.7	8.0	7.7	7.8	7.6	7.3	7.4
21	8.0	7.9	7.9	7.9	7.6	7.7	7.9	7.6	7.7	7.6	7.4	7.5
22	8.0	7.9	7.9	7.8	7.5	7.7	7.9	7.6	7.7	7.7	7.4	7.5
23	8.0	7.9	7.9	7.8	7.6	7.7	7.9	7.6	7.7	7.7	7.4	7.5
24	8.0	7.8	7.9	7.9	7.5	7.7	7.9	7.6	7.7	7.5	7.3	7.4
25	8.0	7.8	7.9	7.8	7.5	7.6	7.7	7.5	7.6	7.5	7.2	7.3
26	8.0	7.9	7.9	7.7	7.4	7.5	7.7	7.5	7.6	7.6	7.2	7.4
27	8.1	7.9	8.0	7.7	7.5	7.5	7.9	7.4	7.6	7.5	7.3	7.4
28	8.1	7.9	8.0	7.7	7.4	7.5	7.9	7.4	7.6	7.5	7.3	7.4
29	8.1	7.7	8.0	7.7	7.5	7.5	7.7	7.5	7.6	7.4	7.2	7.3
30	8.1	7.7	8.0	7.7	7.5	7.5	7.9	7.4	7.6	7.4	7.2	7.3
31	---	---	---	7.6	7.5	7.6	7.9	7.4	7.6	---	---	---
MONTH	---	---	---	8.3	7.4	7.8	---	---	---	8.0	7.2	7.5

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.4	7.2	7.3	7.6	7.4	7.5	7.7	7.6	7.6	7.6	7.5	7.5
2	7.4	7.2	7.3	7.7	7.4	7.6	7.7	7.4	7.5	7.5	7.5	7.5
3	7.5	7.2	7.3	7.8	7.6	7.7	7.4	7.2	7.3	7.5	7.5	7.5
4	7.5	7.1	7.3	7.7	7.6	7.6	7.4	7.3	7.4	7.6	7.5	7.5
5	7.5	7.2	7.4	7.6	7.5	7.6	7.4	7.3	7.4	7.6	7.5	7.5
6	7.5	7.2	7.3	7.6	7.5	7.6	7.4	7.3	7.3	7.6	7.5	7.5
7	7.5	7.1	7.3	7.6	7.4	7.5	7.3	7.3	7.3	7.6	7.5	7.5
8	7.5	7.2	7.3	7.6	7.4	7.5	7.4	7.2	7.3	7.6	7.5	7.5
9	7.5	7.2	7.3	7.6	7.4	7.5	7.5	7.4	7.4	7.6	7.5	7.5
10	7.6	7.2	7.3	7.6	7.4	7.5	7.5	7.4	7.4	7.5	7.5	7.5
11	7.4	7.2	7.4	7.6	7.4	7.5	7.5	7.3	7.4	7.5	7.5	7.5
12	7.5	7.3	7.4	7.6	7.5	7.5	7.5	7.4	7.5	7.5	7.5	7.5
13	7.6	7.3	7.5	7.6	7.5	7.5	7.6	7.5	7.5	7.5	7.5	7.5
14	7.5	7.3	7.4	7.6	7.5	7.6	7.6	7.5	7.5	7.5	7.5	7.5
15	7.5	7.3	7.4	7.5	7.5	7.5	7.6	7.5	7.6	7.6	7.5	7.5
16	7.5	7.3	7.4	7.5	7.4	7.5	7.6	7.6	7.6	7.5	7.5	7.5
17	7.5	7.3	7.4	7.5	7.4	7.4	7.6	7.5	7.6	7.5	7.4	7.5
18	7.5	7.3	7.5	7.5	7.4	7.4	7.7	7.6	7.6	7.5	7.4	7.5
19	7.5	7.4	7.5	7.5	7.4	7.4	7.6	7.5	7.6	7.5	7.5	7.5
20	7.5	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.5	7.5	7.4	7.5
21	7.5	7.3	7.4	7.6	7.5	7.6	7.6	7.5	7.5	7.5	7.5	7.9
22	7.7	7.3	7.5	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
23	7.8	7.4	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.5	7.5	7.5
24	7.8	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.5
25	7.7	7.4	7.6	7.6	7.5	7.5	7.6	7.5	7.6	7.5	7.4	7.5
26	7.7	7.6	7.7	7.6	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.6
27	7.7	7.4	7.6	7.6	7.4	7.5	7.6	7.6	7.6	7.6	7.5	7.6
28	7.7	7.6	7.7	7.6	7.5	7.6	7.6	7.6	7.6	7.6	7.5	7.5
29	7.7	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.4	7.5
30	7.7	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.3	7.4
31	7.6	7.5	7.6	---	---	---	7.6	7.5	7.6	7.5	7.3	7.4
MONTH	7.8	7.1	7.5	7.8	7.4	7.5	7.7	7.2	7.5	7.6	7.3	7.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.4	7.3	7.3	7.9	7.8	7.9	7.8	7.7	7.7	8.6	7.8	8.1
2	7.4	7.2	7.3	7.9	7.9	7.9	7.8	7.7	7.7	8.7	7.8	8.1
3	7.3	7.2	7.2	7.9	7.9	7.9	7.8	7.7	7.7	8.5	7.8	8.0
4	7.3	7.2	7.2	7.9	7.9	7.9	7.7	7.6	7.7	8.5	7.8	8.0
5	7.2	7.2	7.2	7.9	7.9	7.9	7.7	7.6	7.7	8.7	7.8	8.1
6	7.2	7.2	7.2	7.9	7.9	7.9	7.7	7.6	7.7	8.8	7.8	8.2
7	7.2	7.2	7.2	7.9	7.9	7.9	7.7	7.6	7.7	8.8	7.8	8.2
8	7.3	7.2	7.3	7.9	7.9	7.9	7.7	7.6	7.7	8.8	7.8	8.2
9	7.4	7.3	7.3	8.0	7.9	7.9	7.8	7.6	7.7	8.8	7.8	8.2
10	7.4	7.4	7.4	8.0	7.9	7.9	7.8	7.6	7.7	8.8	7.8	8.2
11	7.4	7.4	7.4	8.0	7.9	8.0	7.7	7.6	7.7	8.8	7.9	8.2
12	7.5	7.4	7.4	8.0	8.0	8.0	7.8	7.6	7.7	8.8	7.9	8.2
13	7.5	7.4	7.5	8.0	8.0	8.0	7.8	7.7	7.7	8.9	7.9	8.2
14	7.5	7.4	7.5	8.1	8.0	8.1	7.8	7.7	7.7	8.6	7.8	8.1
15	7.5	7.5	7.5	8.2	8.1	8.1	7.8	7.7	7.7	8.8	7.8	8.2
16	7.5	7.5	7.5	8.2	8.1	8.2	7.8	7.7	7.7	8.9	7.8	8.2
17	7.5	7.5	7.5	8.2	7.7	8.1	7.9	7.7	7.7	8.8	7.8	8.2
18	7.5	7.5	7.5	7.7	7.6	7.6	7.9	7.7	7.8	8.8	7.8	8.2
19	7.5	7.5	7.5	7.6	7.5	7.6	7.9	7.7	7.8	8.9	7.9	8.2
20	7.5	7.5	7.5	7.6	7.5	7.5	7.9	7.7	7.8	9.0	7.9	8.3
21	7.5	7.4	7.5	7.7	7.6	7.7	7.9	7.7	7.8	9.0	7.9	8.3
22	7.6	7.5	7.5	7.7	7.7	7.7	7.9	7.7	7.8	8.9	7.8	8.2
23	7.6	7.5	7.6	7.7	7.7	7.7	7.9	7.7	7.8	9.0	7.7	8.2
24	7.6	7.5	7.6	7.8	7.7	7.7	7.9	7.7	7.8	8.8	7.7	8.1
25	7.8	7.6	7.7	7.8	7.7	7.7	8.0	7.7	7.8	8.8	7.8	8.1
26	7.8	7.8	7.8	7.8	7.7	7.7	7.9	7.7	7.8	8.7	7.8	8.1
27	7.8	7.8	7.8	7.8	7.7	7.7	8.0	7.7	7.8	8.6	7.7	8.0
28	7.9	7.8	7.8	7.8	7.7	7.7	8.1	7.6	7.8	8.6	7.7	8.1
29	---	---	---	7.8	7.7	7.7	8.4	7.6	7.9	8.6	7.8	8.1
30	---	---	---	7.8	7.7	7.7	8.5	7.8	8.0	8.5	7.8	8.1
31	---	---	---	7.8	7.7	7.8	---	---	---	8.5	7.8	8.1
MONTH	7.9	7.2	7.5	8.2	7.5	7.8	8.5	7.6	7.8	9.0	7.7	8.2

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.5	7.8	8.0	7.9	7.8	7.8	7.8	7.1	7.4	---	---	---
2	8.3	7.8	8.0	7.9	7.7	7.8	8.1	7.4	7.6	7.6	7.3	7.4
3	8.5	7.9	8.1	7.9	7.6	7.8	8.4	7.4	7.7	7.8	7.2	7.4
4	8.5	7.8	8.1	8.0	7.7	7.8	8.5	7.4	7.7	8.1	7.2	7.5
5	8.4	7.9	8.1	8.0	7.8	7.9	8.6	7.4	7.7	8.4	7.2	7.5
6	8.2	7.9	8.0	8.0	7.8	7.9	8.6	7.4	7.7	8.5	7.2	7.5
7	8.4	7.9	8.1	8.0	7.8	7.9	8.8	7.3	7.7	8.2	7.3	7.5
8	8.4	7.9	8.1	8.0	7.8	7.9	8.1	7.2	7.5	8.2	7.4	7.6
9	8.3	7.9	8.1	8.1	7.8	7.9	7.9	7.5	7.6	7.7	7.3	7.4
10	8.2	7.9	8.0	8.1	7.8	7.9	8.2	7.5	7.7	7.8	7.4	7.5
11	8.1	7.9	8.0	8.1	7.9	8.0	8.1	7.5	7.7	7.7	7.5	7.5
12	8.1	7.9	8.0	8.2	7.9	8.0	8.0	7.4	7.6	7.9	7.5	7.6
13	8.1	7.8	8.0	8.2	7.9	8.0	8.0	7.4	7.6	7.8	7.5	7.6
14	8.1	7.8	7.9	8.3	8.0	8.1	8.0	7.4	7.6	7.7	7.4	7.5
15	8.0	7.9	7.9	8.3	8.0	8.1	8.2	7.3	7.6	7.7	7.5	7.6
16	8.0	7.9	8.0	8.3	8.0	8.1	8.0	7.3	7.5	7.8	7.5	7.6
17	8.0	7.9	7.9	8.3	8.0	8.1	8.0	7.3	7.5	7.7	7.5	7.6
18	8.0	7.8	7.9	8.5	8.0	8.1	7.8	7.3	7.4	7.7	7.5	7.6
19	8.0	7.9	7.9	8.4	8.0	8.1	7.8	7.3	7.4	7.7	7.5	7.7
20	8.0	7.9	7.9	8.4	8.0	8.1	7.9	7.3	7.5	7.8	7.5	7.6
21	8.0	7.8	7.9	8.6	8.0	8.1	7.9	7.3	7.5	7.8	7.5	7.7
22	8.0	7.8	7.9	8.2	7.4	7.9	8.0	7.5	7.6	7.8	7.5	7.7
23	8.0	7.8	7.9	8.3	7.3	7.6	8.3	7.4	7.6	7.8	7.5	7.7
24	8.1	7.7	7.9	8.4	7.3	7.6	7.9	7.4	7.5	7.8	7.6	7.7
25	7.9	7.7	7.8	8.3	7.3	7.6	8.0	7.4	7.5	7.8	7.7	7.8
26	7.9	7.7	7.8	8.3	7.3	7.6	---	---	---	7.7	7.4	7.5
27	7.9	7.7	7.8	8.3	7.3	7.5	---	---	---	7.8	7.5	7.6
28	7.9	7.7	7.8	8.3	7.3	7.6	---	---	---	7.7	7.4	7.6
29	7.9	7.7	7.8	8.2	7.2	7.5	---	---	---	7.7	7.4	7.6
30	7.9	7.8	7.9	7.5	7.2	7.2	---	---	---	7.8	7.4	7.6
31	---	---	---	7.3	7.0	7.2	---	---	---	---	---	---
MONTH	8.5	7.7	8.0	8.6	7.0	7.8	---	---	---	---	---	---

BEST COPY AVAILABLE

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	17.0	11.0	13.5	22.5	16.0	19.5	16.5	11.5	13.5
2	---	---	---	20.0	11.5	15.0	24.0	17.5	20.0	17.0	10.0	13.0
3	---	---	---	19.5	11.5	15.5	---	---	---	18.0	11.5	14.5
4	---	---	---	20.5	12.5	16.5	---	---	---	17.5	11.5	14.5
5	---	---	---	20.5	13.5	17.0	---	---	---	17.5	13.0	15.0
6	---	---	---	19.5	12.0	15.5	---	---	---	16.0	12.0	13.5
7	---	---	---	19.0	10.5	14.5	21.5	---	---	14.5	9.0	12.0
8	---	---	---	19.5	11.0	15.0	23.0	15.0	18.5	17.0	13.0	14.5
9	---	---	---	20.0	11.5	15.5	24.0	16.0	20.0	16.5	11.0	13.5
10	---	---	---	20.5	12.0	16.0	22.5	18.5	20.0	15.0	10.5	13.0
11	---	---	---	20.5	12.5	16.5	23.5	16.5	20.0	14.0	10.5	12.0
12	---	---	---	19.5	12.5	16.0	23.5	17.5	20.0	13.5	9.0	11.0
13	---	---	---	20.0	12.5	16.0	21.0	14.5	17.5	14.5	8.5	11.0
14	---	---	---	20.5	13.0	16.5	20.5	13.0	16.5	14.0	8.0	10.5
15	---	---	---	21.5	13.5	17.0	21.0	13.5	17.0	14.5	9.5	12.0
16	19.0	---	---	22.0	14.0	18.0	21.5	14.0	17.5	15.0	9.5	12.0
17	18.5	10.0	14.0	22.5	14.5	18.5	23.0	15.5	19.0	15.5	10.0	12.5
18	18.5	9.5	13.5	22.5	14.0	18.0	21.5	15.5	18.0	17.0	10.5	13.5
19	18.5	10.5	14.0	22.0	13.5	17.5	20.5	12.5	16.0	16.0	11.5	13.5
20	16.0	11.5	13.5	20.0	12.5	16.5	20.0	12.0	16.0	15.0	12.5	13.5
21	13.0	11.5	12.0	19.5	12.0	15.5	20.5	12.0	16.0	12.5	9.5	11.0
22	13.0	11.5	12.0	19.5	11.5	15.5	20.0	13.0	16.5	11.0	9.0	10.0
23	18.5	10.0	14.0	20.5	12.5	16.5	20.0	14.0	16.5	11.0	8.0	9.5
24	20.5	11.5	15.0	21.5	14.0	18.0	19.0	12.5	15.5	10.0	5.5	7.5
25	20.5	13.0	16.5	24.0	15.0	19.5	19.5	12.5	15.5	10.5	6.5	8.5
26	19.0	13.0	15.5	24.0	17.0	20.0	19.5	13.5	16.0	10.5	8.0	9.5
27	20.5	13.0	16.5	24.0	17.5	20.5	19.0	13.5	15.5	10.0	6.0	8.0
28	21.5	13.5	17.0	24.0	16.5	20.0	16.0	10.5	13.0	9.0	4.0	6.5
29	18.0	14.0	16.0	21.0	18.0	19.5	17.0	10.0	13.0	9.0	4.0	6.0
30	17.0	10.0	13.5	24.0	16.5	19.5	16.0	11.0	13.5	9.5	4.5	7.0
31	---	---	---	24.0	16.5	20.0	16.5	13.0	14.5	---	---	---
MONTH	---	---	---	24.0	10.5	17.0	---	---	---	18.0	4.0	11.5

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.0	5.5	7.5	.5	.0	.0	1.5	.0	1.0	.0	.0	.0
2	10.5	6.0	8.0	.5	.0	.0	.5	.0	.0	.0	.0	.0
3	11.0	6.5	8.5	4.5	1.0	3.0	.5	.0	.5	.0	.0	.0
4	11.0	7.0	9.0	4.5	2.0	3.0	.5	.0	.0	.0	.0	.0
5	9.5	6.0	8.0	3.0	1.5	2.0	.5	.0	.0	.0	.0	.0
6	10.0	6.5	8.5	4.0	2.0	3.0	.5	.0	.0	.0	.0	.0
7	11.5	7.0	9.0	3.5	2.0	3.0	.0	.0	.0	.0	.0	.0
8	11.5	7.5	9.5	3.5	1.5	2.5	.0	.0	.0	.0	.0	.0
9	11.5	8.5	10.0	4.0	2.5	3.0	.0	.0	.0	.0	.0	.0
10	12.0	9.0	10.5	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
11	11.5	9.0	10.5	4.5	3.0	3.5	.0	.0	.0	.0	.0	.0
12	8.5	7.0	7.5	6.0	4.5	5.0	.5	.0	.0	.0	.0	.0
13	8.5	6.0	7.0	5.5	5.0	5.0	.5	.5	.5	.0	.0	.0
14	7.0	3.5	5.0	5.0	1.5	3.0	.5	.5	.5	.0	.0	.0
15	7.0	4.0	5.0	1.5	.5	1.0	.5	.5	.5	.0	.0	.0
16	7.0	4.0	5.0	2.5	1.0	1.5	.5	.5	.5	.5	.0	.0
17	5.0	2.5	3.5	2.5	1.0	2.0	.5	.0	.5	.5	.0	.5
18	3.5	1.0	2.5	3.0	1.5	2.5	.0	.0	.0	.5	.0	.5
19	3.0	.0	1.5	4.0	3.0	3.5	.0	.0	.0	.5	.5	.5
20	3.0	.5	1.5	4.0	3.5	4.0	.0	.0	.0	.5	.0	.5
21	2.0	.0	1.0	4.0	3.5	3.5	.0	.0	.0	1.0	.5	.5
22	2.5	.0	1.0	4.0	3.0	3.5	.0	.0	.0	1.0	.5	.5
23	2.0	.5	1.0	3.5	2.5	3.0	.0	.0	.0	1.0	.5	.5
24	4.0	1.5	3.0	3.0	2.5	3.0	.0	.0	.0	1.0	.5	.5
25	7.0	4.0	5.5	3.5	2.0	2.5	.0	.0	.0	1.0	.5	.5
26	6.0	3.0	4.5	2.5	1.5	2.0	.5	.0	.0	1.0	.5	.5
27	3.5	1.5	2.5	1.5	.0	.5	.5	.0	.5	1.0	.0	.5
28	5.0	3.0	4.0	1.5	.0	.5	.5	.0	.5	1.0	.0	.5
29	3.0	2.0	2.5	1.5	.5	1.0	.5	.0	.0	.0	.0	.0
30	4.5	1.5	2.5	2.5	1.0	1.5	.5	.0	.5	.5	.0	.0
31	2.5	.0	1.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	12.0	.0	5.5	6.0	.0	2.5	1.5	.0	.0	1.0	.0	.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	1.0	.5	.5	7.0	3.5	4.5	14.5	7.0	10.5
2	.0	.0	.0	1.0	.5	1.0	6.0	3.0	4.5	15.0	9.0	11.5
3	.0	.0	.0	1.0	.5	.5	6.0	3.0	4.5	11.0	7.0	9.5
4	.0	.0	.0	1.5	.5	1.0	6.5	2.0	4.0	10.0	5.0	7.5
5	.0	.0	.0	1.5	1.0	1.5	7.5	2.5	4.5	11.0	4.0	7.5
6	.0	.0	.0	2.0	1.0	1.5	7.5	3.0	5.0	13.0	6.5	9.5
7	.0	.0	.0	2.0	1.0	1.5	8.0	3.0	5.5	13.5	8.0	10.5
8	.0	.0	.0	2.0	.5	1.0	9.0	4.0	6.5	13.0	8.0	10.0
9	.0	.0	.0	2.0	1.0	1.5	10.0	4.5	7.0	14.5	5.5	9.5
10	.0	.0	.0	2.5	1.0	1.5	10.5	5.0	7.5	12.5	6.0	9.0
11	.0	.0	.0	2.5	1.0	1.5	10.0	6.0	8.0	10.5	5.5	7.5
12	.0	.0	.0	3.0	1.0	2.0	10.5	5.5	8.0	13.0	3.5	8.0
13	.0	.0	.0	3.0	1.5	2.0	11.0	5.5	8.5	12.5	4.5	8.5
14	.0	.0	.0	3.5	1.5	2.0	11.5	6.5	9.0	13.0	9.0	10.5
15	.0	.0	.0	4.0	1.5	2.5	10.5	7.0	9.0	17.5	6.5	11.5
16	.0	.0	.0	4.0	2.0	2.5	9.5	7.5	8.5	18.5	8.5	13.0
17	.0	.0	.0	4.5	2.0	3.0	10.5	5.5	8.0	19.5	9.0	14.0
18	.0	.0	.0	5.0	2.0	3.0	9.5	7.0	8.0	20.0	10.0	14.5
19	.0	.0	.0	5.5	2.5	3.5	9.5	5.5	7.5	20.0	10.5	15.0
20	.0	.0	.0	5.0	3.0	4.0	8.0	3.0	5.5	19.5	10.5	14.5
21	.0	.0	.0	4.0	1.5	3.5	8.0	2.5	5.0	20.5	10.5	15.0
22	.0	.0	.0	2.5	.5	1.5	9.0	5.0	7.0	20.0	11.0	15.5
23	.0	.0	.0	3.5	1.5	2.5	8.0	5.5	7.0	22.0	12.5	16.5
24	.0	.0	.0	4.5	1.5	3.0	8.0	3.5	6.0	19.5	14.0	16.5
25	.5	.0	.0	4.5	.5	2.0	10.5	3.5	7.0	19.5	11.0	15.0
26	.5	.0	.0	3.5	.5	2.0	7.0	4.5	5.5	20.0	11.0	15.0
27	.5	.0	.5	3.5	2.0	3.0	11.0	6.0	8.5	19.0	11.5	15.0
28	.5	.0	.5	6.5	1.5	3.5	13.0	8.0	10.0	17.0	12.5	14.5
29	---	---	---	4.5	1.5	3.0	13.0	5.5	9.0	15.0	10.5	12.5
30	---	---	---	4.5	2.0	3.0	13.5	5.0	9.0	14.5	10.5	12.5
31	---	---	---	6.0	2.0	4.0	---	---	---	19.0	9.0	13.5
MONTH	.5	.0	.0	6.5	.5	2.0	13.5	2.0	7.0	22.0	3.5	12.0

12433561 BLUE CREEK NEAR MOUTH, NEAR WELLPINIT, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	17.5	11.0	14.0	23.0	13.0	18.0	23.0	17.5	20.0	---	---	---
2	14.0	11.5	12.5	25.0	13.5	19.0	24.0	17.5	20.0	20.0	13.0	16.0
3	18.0	10.0	13.5	26.0	15.0	20.0	25.5	16.0	20.0	19.5	12.5	15.5
4	18.0	12.5	15.0	26.0	15.5	20.0	23.5	16.0	19.5	19.5	13.0	15.5
5	15.5	11.5	13.0	25.0	16.0	19.5	24.5	15.5	19.5	18.0	13.5	15.5
6	12.5	10.5	11.5	25.0	14.0	19.0	24.5	14.5	19.0	19.0	13.0	16.0
7	15.5	11.5	13.0	26.0	15.0	20.0	22.0	15.5	18.0	16.5	10.5	13.5
8	18.5	10.0	13.5	27.0	16.0	21.0	19.0	15.5	17.0	17.0	13.0	15.0
9	17.5	9.0	13.0	27.5	17.0	22.0	18.0	13.0	16.0	15.0	13.5	14.0
10	19.0	9.0	13.5	27.5	17.5	22.0	18.5	14.0	16.0	18.0	13.5	15.0
11	20.0	9.5	14.5	25.5	15.5	20.0	22.5	13.0	17.5	15.0	13.0	14.0
12	20.5	11.5	16.0	25.0	15.5	20.0	21.0	14.5	17.5	16.5	12.5	14.0
13	18.0	12.0	15.0	25.5	14.5	19.5	22.5	13.0	17.0	16.0	11.5	13.5
14	19.0	12.5	15.5	25.5	14.5	19.5	23.5	13.5	17.5	15.5	13.0	14.0
15	20.5	12.5	16.0	26.0	14.5	20.0	22.5	14.5	18.0	15.5	11.5	13.0
16	20.0	10.5	15.0	26.0	15.5	20.0	23.0	13.0	17.5	14.0	11.0	12.5
17	21.0	10.0	15.5	26.5	16.0	20.5	23.5	13.5	18.0	13.5	11.5	12.5
18	23.0	12.0	17.0	26.5	16.0	20.5	24.0	13.5	18.0	14.0	10.0	11.5
19	22.5	13.0	17.5	26.5	15.0	20.0	23.5	15.5	18.5	14.5	9.5	11.5
20	21.0	13.5	17.0	27.0	15.5	20.5	19.5	14.5	16.5	13.5	9.0	11.0
21	21.5	11.5	16.5	27.0	15.5	20.5	21.5	14.0	17.0	15.0	10.0	12.0
22	21.5	12.0	16.5	25.5	16.5	20.5	22.5	12.5	17.0	13.0	7.5	10.0
23	20.0	11.0	15.0	26.5	16.5	21.0	22.5	13.0	17.0	12.0	6.5	9.5
24	18.0	9.5	14.0	26.0	15.5	20.0	21.5	14.5	18.0	14.0	8.5	11.0
25	21.0	10.0	15.0	26.0	15.5	20.0	25.0	16.0	19.5	14.0	8.0	10.5
26	22.0	11.5	16.5	26.0	15.0	20.0	---	---	---	14.0	8.5	10.5
27	21.5	12.0	16.5	24.5	14.5	19.0	---	---	---	12.0	7.5	9.0
28	23.0	13.0	17.5	25.5	15.0	19.5	---	---	---	10.0	4.5	7.0
29	22.5	13.0	17.5	26.0	16.0	20.5	---	---	---	9.5	4.0	6.5
30	23.0	13.5	18.0	26.5	17.0	21.0	---	---	---	10.0	4.0	7.0
31	---	---	---	27.0	16.5	21.0	---	---	---	---	---	---
MONTH	23.0	9.0	15.0	27.5	13.0	20.0	---	---	---	---	---	---

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12435500 FEEDER CANAL AT GRAND COULEE, WA

LOCATION.--Lat 47°57'05", long 118°59'40", on line between secs.1 and 2, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, on left bank at Grand Coulee, 0.2 mi downstream from headworks structure, and 0.5 mi southwest of Grand Coulee Dam.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Recording flowmeters and water-stage recorder on rated pumps. Datum of gage is 1,500.00 ft above Bureau of Reclamation datum, adjustment of 1937. May 1, 1952, to Jan. 10, 1978, at datum 50.00 ft higher. Jan. 11, 1978, to Feb. 22, 1981, nonrecording gage at datum 1,500.00 ft lower. Water-stage recorder for Franklin D. Roosevelt Lake (see sta 12436000) also used to determine head. May 1, 1952, to Oct. 13, 1960, auxiliary gage 0.6 mi downstream from base gage at same datum.

REMARKS.--Since 1951, water has been pumped (lift about 280 ft) from Franklin D. Roosevelt Lake into the two-mile long Feeder Canal, which empties into Banks Lake. From Banks Lake, it is distributed through a system of canals to the Columbia Basin project for irrigation. Between May 1951, and December 1974, six pumps were used. Since December 1974, six pump generators, which can also generate power during peak demand periods by returning water from Banks Lake, via the Feeder Canal, to Franklin D. Roosevelt Lake have been added; two in December 1974 and one each in April, June, and November 1983 and April 1984. Discharge is computed from relations between pump operation and head.

COOPERATION.--Discharge records furnished by U.S. Bureau of Reclamation; two discharge measurements made by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 14,600 ft^3/s May 28, 1984; minimum daily discharge, -4,410 ft^3/s Sept. 27, 1985, reverse flow from Banks Lake.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 13,600 ft^3/s July 14; minimum daily discharge, -4,410 ft^3/s Sept. 27, reverse flow from Banks Lake.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1890	0	0	0	0	0	0	5580	6920	9280	6580	8750
2	-528	0	0	0	0	0	955	6360	7020	7910	6700	8740
3	-303	0	0	0	0	0	2500	7030	7120	7290	10300	6680
4	-343	0	0	0	0	0	2490	7620	7180	7930	10300	5280
5	685	0	0	0	0	0	2490	7600	7230	9710	10400	5280
6	3770	0	0	0	0	0	2500	7550	7280	13300	10400	5290
7	3780	0	0	0	0	0	2510	7520	7340	13300	10300	5300
8	3780	0	0	0	0	0	2520	7490	7420	9370	9020	5320
9	3770	0	0	0	0	0	2520	7600	7530	7120	8490	1050
10	4750	0	0	0	0	0	2520	7440	7620	6240	8490	0
11	4640	0	0	0	0	0	2530	7390	7700	6250	8500	0
12	3750	0	0	0	0	0	2530	7390	5710	6270	8500	0
13	3740	0	0	0	0	0	2550	7900	7830	13300	8490	0
14	3740	0	0	0	0	0	2570	7650	7890	13600	7610	0
15	3420	0	0	0	0	0	2580	7170	7930	952	6910	0
16	1860	0	0	0	0	0	2580	7180	7980	8120	6890	0
17	1850	0	0	0	0	0	2590	8350	8000	8120	6900	-22
18	1850	0	0	0	0	0	4090	9880	8000	8130	6910	-14
19	890	0	0	0	0	0	5200	9940	7990	9050	6170	0
20	0	0	0	0	0	0	5220	10000	9160	9980	5050	0
21	0	0	0	0	0	0	5250	10000	10900	9990	5050	0
22	0	0	0	0	0	0	5260	8860	11500	8900	5050	0
23	0	0	0	0	0	0	5230	8850	11500	8140	5060	-1900
24	0	0	0	0	0	0	5220	9660	9180	8130	5050	-4320
25	0	0	0	0	0	0	5220	10600	7990	8130	5050	-4360
26	0	0	0	0	0	0	5210	10800	7980	9370	6050	-4370
27	0	0	0	0	0	0	5200	10900	7980	9960	6910	-4410
28	0	0	0	0	0	0	5180	11000	10400	9970	6900	-7.1
29	0	0	0	0	0	0	5140	10000	13200	8180	6900	0
30	0	0	0	0	0	0	5090	8920	13300	6570	7160	-2410
31	0	0	0	0	0	0	---	7730	---	6570	8740	---
TOTAL	46991	0	0	0	0	0	105445	261960	254780	269132	230830	29876.9
MEAN	1516	0	0	0	0	0	3515	8450	8493	8682	7446	996
MAX	4750	0	0	0	0	0	5260	11000	13300	13600	10400	8750
MIN	-528	0	0	0	0	0	0	5580	5710	952	5050	-4410
AC-FT	93210	0	0	0	0	0	209200	519600	505400	533800	457900	59260

CAL YR 1984 TOTAL 1130846.1 MEAN 3090 MAX 14600 MIN -1790 AC-FT 2243000
WTR YR 1985 TOTAL 1199014.9 MEAN 3285 MAX 13600 MIN -4410 AC-FT 2378000

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12436000 FRANKLIN D. ROOSEVELT LAKE AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'20", long 118°59'02", near center of sec.1, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, in block 12 of Grand Coulee Dam on Columbia River, and at mile 596.5.

DRAINAGE AREA.--74,700 mi², approximately.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1943, published as Columbia River Reservoir at Grand Coulee Dam.

REVISED RECORDS.--WSP 1286: 1942, 1945(M). WSP 1316: 1942 (May monthend contents). WSP 1933: Drainage area. WDR WA-73-1: 1965, 1967. WDR WA-75-1: 1974 monthend contents.

GAGE.--Water-stage recorder. Datum of gage is Bureau of Reclamation datum, adjustment of 1937, or 1.425 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Apr. 24, 1942, nonrecording gage at site 2,000 ft upstream at same datum.

REMARKS.--Elevations for Oct. 1-23 provided by U.S. Bureau of Reclamation through the Corps of Engineer's North Pacific Division Reservoir Control Center. Reservoir is formed by concrete dam; construction of dam began in 1934; completed in 1941; storage began early in construction period. Capacity, 5,022,179 acre-ft between elevations 1,208 ft, proposed lower limit of operation, and 1,288 ft, top of gates. Capacity increased to 5,185,452 acre-ft by use of 2 ft flashboards installed after high-water period each year beginning August 1961. Storage below 1,208 ft, 4,209,207 acre-ft. Figures given herein represent total contents. Water is used for power development and irrigation. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal (see sta 12435500) and for irrigation of about 350,000 acres in the United States plus an additional 37,000 acres in Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,586,200 acre-ft July 17, 1942, June 3, 1945, elevation, 1,290.3 ft; maximum elevation, 1,290.36 ft Aug. 6, 1976; minimum contents observed, 16,200 acre-ft Aug. 29, 1938, elevation, 956.1 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,242,732 acre-ft Nov. 5, elevation, 1,288.14 ft; minimum, 4,552,973 acre-ft May 15, elevation, 1,215.33 ft.

Capacity table dated October 24, 1975 (elevation, in feet, and contents, in acre-ft)
(Prepared by Geological Survey from data furnished by Bureau of Reclamation)

1,210.0	4,301,035	1,270.0	7,864,082
1,230.0	5,308,657	1,291.0	9,477,261
1,250.0	6,501,603		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1285.70	1286.20	1284.08	1286.64	1277.17	1255.15	1226.98	1225.91	1242.48	1272.13	1281.38	1282.66
2	1285.45	1286.95	1284.37	1286.06	1276.59	1253.82	1226.49	1224.70	1245.48	1271.59	1281.67	1282.54
3	1285.20	1287.60	1284.14	1284.93	1276.49	1252.64	1225.16	1223.55	1247.45	1272.19	1282.27	1282.12
4	1285.10	1288.08	1283.70	1283.98	1275.32	1251.74	1224.93	1223.01	1249.21	1273.06	1283.28	1281.82
5	1285.00	1287.44	1283.33	1283.39	1274.18	1250.62	1225.49	1222.37	1250.24	1273.98	1283.69	1281.95
6	1285.05	1287.16	1283.05	1282.98	1273.6[illegible]	1249.52	1226.39	1221.30	1252.13	1274.47	1283.71	1282.46
7	1285.65	1286.88	1283.30	1283.12	1273.2[illegible]	1248.30	1226.86	1220.50	1253.71	1275.21	1283.60	1283.02
8	1285.45	1286.07	1283.72	1282.88	1273.08	1247.09	1226.88	1219.98	1257.08	1276.02	1283.70	1283.63
9	1285.15	1285.72	1283.98	1282.75	1272.61	1245.57	1227.01	1219.67	1260.42	1276.57	1283.77	1283.78
10	1284.80	1286.32	1284.28	1282.47	1272.06	1244.46	1227.21	1218.48	1263.16	1277.22	1283.83	1284.25
11	1284.45	1286.74	1284.42	1281.86	1271.38	1243.25	1227.48	1218.31	1265.54	1278.08	1284.31	1284.60
12	1284.10	1286.82	1284.37	1281.93	1270.96	1241.85	1228.15	1218.22	1267.83	1278.90	1284.29	1284.70
13	1283.85	1287.00	1284.47	1282.95	1270.52	1240.33	1229.05	1216.93	1270.06	1279.82	1283.54	1285.22
14	1283.60	1287.47	1284.56	1282.97	1269.51	1239.01	1230.40	1216.36	1271.66	1280.51	1283.19	1285.93
15	1282.80	1287.41	1284.73	1283.24	1268.52	1237.98	1230.05	1215.74	1273.36	1280.20	1283.21	1286.41
16	1282.20	1287.28	1285.32	1283.10	1267.73	1238.08	1230.33	1216.61	1274.84	1279.67	1283.29	1286.49
17	1282.00	1287.07	1285.34	1282.84	1266.95	1238.24	1230.65	1217.32	1275.11	1279.76	1283.72	1286.74
18	1282.40	1286.77	1284.24	1282.47	1265.93	1237.38	1231.33	1218.93	1274.57	1280.26	1284.02	1286.84
19	1283.20	1285.55	1283.16	1282.03	1264.97	1236.90	1231.70	1220.58	1274.19	1280.70	1284.44	1286.98
20	1284.30	1284.85	1282.14	1282.38	1264.24	1236.52	1232.72	1221.56	1273.76	1281.15	1284.33	1286.89
21	1285.25	1284.17	1281.65	1282.14	1263.29	1235.55	1233.59	1222.82	1273.80	1281.10	1284.26	1286.90
22	1285.35	1284.40	1281.85	1281.55	1262.71	1234.52	1232.85	1224.04	1273.93	1280.75	1284.24	1286.97
23	1285.05	1284.78	1282.55	1280.80	1262.07	1233.90	1232.22	1225.37	1274.51	1280.28	1284.00	1286.48
24	1284.97	1285.18	1282.90	1280.32	1260.88	1233.48	1231.83	1227.43	1274.70	1280.23	1283.87	1286.15
25	1284.83	1285.40	1283.95	1279.78	1259.44	1232.33	1231.77	1230.27	1274.35	1280.20	1283.84	1285.96
26	1284.93	1284.96	1284.43	1279.68	1258.13	1230.87	1231.19	1233.32	1274.25	1280.10	1283.07	1285.75
27	1285.53	1284.36	1284.54	1279.63	1257.19	1229.51	1230.77	1235.44	1274.09	1280.23	1282.94	1285.71
28	1285.70	1284.20	1284.54	1279.12	1256.09	1228.46	1229.54	1236.36	1273.81	1280.71	1282.82	1285.46
29	1285.23	1283.70	1285.06	1278.66	---	1227.29	1228.61	1237.13	1273.36	1280.58	1282.59	1285.02
30	1285.10	1283.60	1285.81	1277.85	---	1227.29	1227.29	1238.26	1273.12	1280.90	1282.40	1284.13
31	1285.40	---	1286.34	1277.74	---	1227.06	---	1239.73	---	1281.16	1282.55	---
MEAN	1284.61	1286.00	1284.01	1282.01	1268.03	1239.64	1229.16	1224.20	1266.07	1278.31	1283.41	1284.92
MAX	1285.70	1288.08	1286.34	1286.64	1277.17	1255.15	1233.59	1239.73	1275.11	1281.16	1284.44	1286.98
MIN	1282.00	1283.60	1281.65	1277.74	1256.09	1227.06	1224.93	1215.74	1242.48	1271.59	1281.38	1281.82
†	9022954	8881165	9097814	8433061	6899156	5149019	5161354	5866621	8090595	8692211	8799397	8922702
‡	-47718	-141789	+216649	-664753	-1533905	-1750137	+12335	+705267	+2223974	+601616	+107186	+123305

CAL YR 1984......................‡ +287555
WTR YR 1985......................‡ -147970

† Contents, in acre-feet, on last day of month.
‡ Change in contents, in acre-feet.

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°37'56", long 118°58'54", in SW¼SE¼ sec.36, T.29 N., R.30 E., Douglas County, Hydrologic Unit 17020005, in pier 3 on west side of bridge on State Highway 155, 3,200 ft downstream from Grand Coulee Dam, 14.2 mi upstream from Nespelem River, and at mile 596.3.

DRAINAGE AREA.--74,700 mi², approximately.

PERIOD OF RECORD.--April 1913 to June 1923 (monthly discharge only), July to December 1923, January 1924 to May 1928 (monthly discharge only), June 1928 to current year. Published as "at Grand Coulee near Nespelem" prior to 1936 and as "at Grand Coulee" 1936-42.

REVISED RECORDS.--WSP 1286: 1942, 1947. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is Bureau of Reclamation datum, adjustment of 1937. June 27 to Dec. 31, 1923, June 12, 1928, to Mar. 31, 1931, nonrecording gage at site 0.5 mi upstream at datum 2.4 ft lower. Apr. 1, 1931, to Dec. 31, 1935, water-stage recorder at site 830 ft downstream at present datum. Since June 12, 1955, auxiliary water-stage recorder 5.3 mi downstream from base gage at datum 1.42 ft lower.

REMARKS.--Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres in the United States and an additional 35,000 acres in Canada.

COOPERATION.-- Discharge provided by U.S. Bureau of Reclamation through the Corps of Engineer's North Pacific Division Reservoir Control Center.

AVERAGE DISCHARGE.--72 years, 110,000 ft³/s, 79,700,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 637,800 ft³/s June 12, 1948, elevation, 987.90 ft; minimum, 14,900 ft³/s Dec. 17, 1956, elevation, 934.37 ft; minimum daily, 15,300 ft³/s Feb. 1, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a discharge of 725,000 ft³/s, estimated.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 179,000 ft³/s Feb. 5; minimum daily discharge, 32,600 ft³/s Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79200	80100	59600	94500	157000	119000	68000	119000	63300	117000	55400	50000
2	83600	55900	70100	137000	142000	121000	75400	118000	52800	102000	48600	59300
3	86000	52400	110000	153000	132000	118000	100000	119000	78000	80000	32600	78700
4	78200	41600	117000	136000	173000	120000	72100	120000	86200	63100	35600	63600
5	81600	72200	116000	128000	179000	126000	49900	124000	104000	62900	60200	62700
6	73000	53300	120000	128000	152000	124000	37000	135000	76600	73300	77600	55700
7	52800	57200	96700	121000	142000	119000	35600	139000	68800	73100	82300	36600
8	66400	88600	82600	142000	142000	116000	47700	139000	39800	78300	74000	37400
9	77100	71000	87200	139000	140000	108000	45900	133000	46900	78000	68500	62000
10	72500	49500	93400	141000	127000	94500	48300	149000	71500	68900	61300	46500
11	81300	47900	102000	156000	126000	102000	52800	135000	75400	64600	46600	50700
12	70100	67100	97800	126000	116000	110000	53400	120000	82400	62900	66200	58600
13	65400	80300	102000	104000	133000	106000	53200	144000	87700	46800	88100	48500
14	63900	82100	102000	136000	149000	110000	55100	130000	94100	52600	79400	35800
15	81300	95800	93000	130000	148000	111000	115000	134000	81600	88600	67500	35300
16	87200	85700	77500	145000	140000	67000	103000	102000	68300	103000	73100	64400
17	78700	85400	99400	149000	142000	75400	108000	107000	114000	81100	58700	55400
18	74400	63000	136000	154000	144000	106000	102000	87200	121000	66200	62100	60400
19	63500	111000	137000	156000	148000	93900	103000	83300	117000	63600	59400	52000
20	61400	90900	135000	126000	133000	95600	93200	99500	113000	60400	65900	58500
21	75700	88600	115000	147000	133000	121000	78000	97800	84200	63400	62800	50900
22	86300	56100	87200	158000	119000	118000	126000	98200	77200	83700	61300	56600
23	90600	56100	72300	164000	109000	97900	123000	97900	64500	87700	60400	81000
24	85200	50300	83400	149000	121000	84700	119000	84800	91400	76300	56500	86500
25	90700	48100	60000	155000	137000	109000	103000	65100	104000	69900	53600	87600
26	76900	87500	77900	132000	129000	121000	111000	59400	96500	62100	85900	89400
27	46800	106000	92900	128000	122000	117000	107000	74100	99800	52800	60700	85000
28	53800	80400	99000	144000	117000	113000	115000	106000	109000	42600	62500	77300
29	84000	99500	89300	137000	---	108000	107000	112000	96000	65600	70800	76400
30	76200	74500	70800	164000	---	83200	110000	101000	81900	53900	62400	96600
31	80100	---	87700	138000	---	70600	---	103000	---	51900	42200	---
TOTAL	2323900	2178100	2969800	4317500	3852000	3285800	2517600	3436300	2546900	2196300	1942200	1859400
MEAN	74960	72600	95800	139300	137600	106000	83920	110800	84900	70850	62650	61980
MAX	90700	111000	137000	164000	179000	126000	126000	149000	121000	117000	88100	96600
MIN	46800	41600	59600	94500	109000	67000	35600	59400	39800	42600	32600	35300
AC-FT	4609000	4320000	5891000	8564000	7640000	6517000	4994000	6816000	5052000	4356000	3852000	3688000

CAL YR 1984 TOTAL 37545100 MEAN 102600 MAX 165000 MIN 41600 AC-FT 74470992
WTR YR 1985 TOTAL 33425800 MEAN 91580 MAX 179000 MIN 32600 AC-FT 66300000

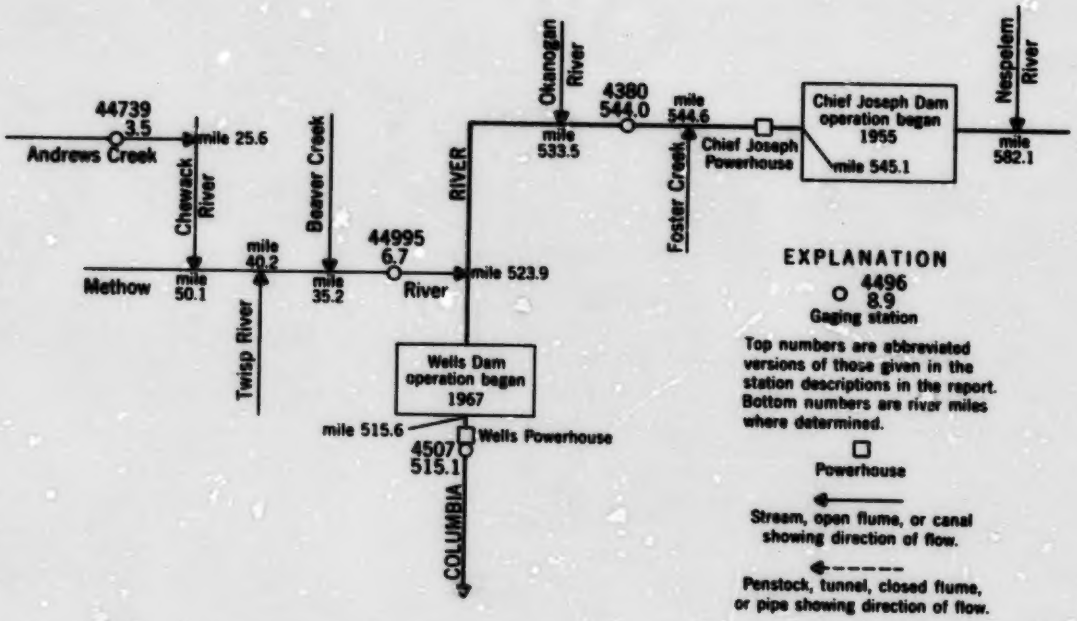
44739
3.5
Andrews Creek
mile 25.6
Chewack River
Methow
mile 50.1
mile 40.2
Twisp River
Beaver Creek
mile 35.2
44995
6.7
River
mile 523.9
RIVER
Okanogan River
mile 533.5
4380
544.0
mile 544.6
Foster Creek
Chief Joseph Powerhouse
Chief Joseph Dam operation began 1955
mile 545.1
Nespelem River
mile 582.1
Wells Dam operation began 1967
mile 515.6
Wells Powerhouse
4507
515.1
COLUMBIA
EXPLANATION
4496
8.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 23.--Gaging stations in Columbia River basin from Chief Joseph Dam to Wells Dam.

12438000 COLUMBIA RIVER AT BRIDGEPORT, WA

LOCATION.--Lat 48°00'34", long 119°39'51", in SW¼SW¼ sec.14, T.29 N., R.25 E., Douglas County, Hydrologic Unit 17020005, on left bank at Bridgeport, 1.0 mi downstream from Foster Creek, 1.6 mi downstream from Chief Joseph Dam, and at mile 543.9.

DRAINAGE AREA.--75,700 mi², approximately.

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Since May 26, 1967, auxiliary water-stage recorder 4,800 ft upstream from base gage at same datum.

REMARKS.--Records fair. Many days in all months except January provided by Corps of Engineers Chief Joseph Dam powerplant through the Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder canal (see sta 12435500) for Columbia Basin project and for irrigation of about 380,000 acres in the United State and an additional 35,000 acres in Canada.

AVERAGE DISCHARGE.--33 years, 112,600 ft³/s, 81,579,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 495,800 ft³/s June 11, 1961; maximum elevation, 792.20 ft June 7, 1956; minimum observed discharge, 4,200 ft³/s Mar. 22, 1966, elevation, 746.91 ft; minimum daily discharge, 22,300 ft³/s Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 172,000 ft³/s Feb. 5; maximum elevation, 784.63 ft May 31; minimum daily discharge, 33,300 ft³/s Aug. 3; minimum elevation, 776.22 June 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82600	77200	59500	90000	150000	120000	66200	114000	66100	114000	57300	52900
2	82100	57000	69300	136000	153000	122000	75100	126000	59400	107000	48500	61500
3	83800	54800	109000	149000	133000	117000	101000	125000	77700	82500	33300	82200
4	76000	39900	115000	139000	161000	130000	75300	117000	86700	64000	36700	67600
5	83200	71300	108000	132000	172000	124000	49100	116000	103000	64600	60100	63400
6	70000	52800	119000	130000	164000	126000	33400	134000	76300	75400	79300	55500
7	51700	65000	104000	124000	154000	121000	37700	141000	69600	71700	80900	37700
8	68100	85500	82500	141000	146000	127000	49800	136000	39000	80000	74400	39300
9	76200	71000	91000	144000	142000	105000	49500	134000	45700	82600	69900	64300
10	71800	50700	101000	149000	130000	104000	52200	137000	72400	70200	61600	48200
11	81800	47400	99900	151000	127000	105000	55500	134000	73800	69600	46800	51400
12	67800	70100	99300	140000	120000	107000	53700	124000	83200	63700	70000	59600
13	65100	81500	102000	110000	134000	117000	52800	138000	87700	48000	89900	50400
14	65600	83700	102000	139000	154000	118000	53900	138000	93900	54100	82300	35300
15	82100	95600	98800	133000	147000	108000	117000	136000	82500	92000	69600	36200
16	84200	86400	76700	146000	142000	71600	102000	98700	69100	105000	78300	67500
17	78900	81800	105000	159000	141000	79100	110000	109000	109000	84300	60600	57700
18	73800	68200	130000	159000	146000	105000	100000	86900	118000	68000	61700	61900
19	63300	107000	141000	154000	146000	94900	115000	85300	118000	64000	59400	40300
20	61000	89300	136000	142000	152000	96200	97700	96900	111000	60600	65200	60200
21	74900	87000	121000	146000	138000	119000	80500	95900	86300	63100	62900	48200
22	84700	56200	91400	154000	123000	122000	122000	101000	74900	85600	62600	56900
23	89700	56100	71300	165000	114000	101000	121000	96400	66000	93200	58900	78900
24	82600	49900	83400	157000	123000	83700	126000	85100	92800	77500	56500	81600
25	90300	46300	60400	158000	134000	114000	109000	64900	105000	72600	54600	87900
26	75000	85500	79600	147000	139000	126000	112000	58000	98900	64300	90400	90600
27	46700	103000	95300	128000	126000	115000	105000	73700	102000	54200	63300	81300
28	54200	80900	101000	143000	119000	109000	114000	107000	108000	44100	62400	78200
29	83100	96800	89600	148000	---	112000	109000	114000	92700	68200	71400	75200
30	72700	74300	71500	163000	---	95400	115000	96500	79400	56100	63900	91900
31	78500	---	89000	140000	---	71500	---	101000	---	53300	42800	---
TOTAL	2301500	2172200	3002500	4416000	3930000	3366400	2560400	3420300	2548100	2253500	1975500	1863800
MEAN	74240	72410	96850	142500	140400	108600	85350	110300	84940	72690	63730	62130
MAX	90300	107000	141000	165000	172000	130000	126000	141000	118000	114000	90400	91900
MIN	46700	39900	59500	90000	114000	71500	33400	58000	39000	44100	33300	35300
AC-FT	4565000	4309000	5955000	8759000	7795000	6677000	5079000	6784000	5054000	4470000	3918000	3697000

CAL YR 1984 TOTAL 37073000 MEAN 101300 MAX 170000 MIN 39900 AC-FT 73534000
WTR YR 1985 TOTAL 33810200 MEAN 92630 MAX 172000 MIN 33300 AC-FT 67063000

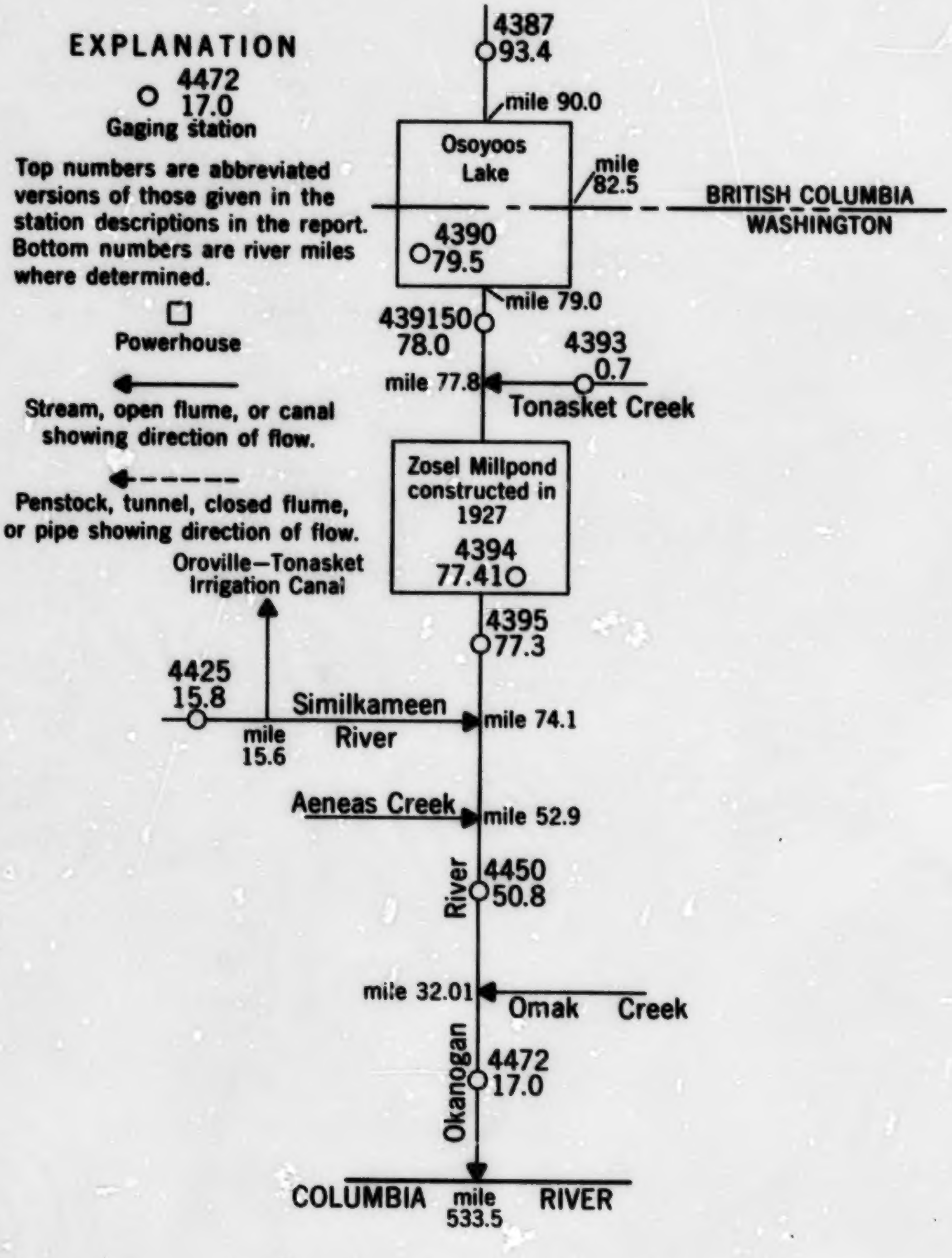
EXPLANATION
4472
17.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
4387
93.4
mile 90.0
Osoyoos Lake
mile 82.5
BRITISH COLUMBIA
WASHINGTON
4390
79.5
mile 79.0
439150
78.0
4393
0.7
mile 77.8
Tonasket Creek
Zosel Millpond constructed in 1927
4394
77.41
Oroville—Tonasket Irrigation Canal
4395
77.3
4425
15.8
Similkameen River
mile 15.6
mile 74.1
Aeneas Creek
mile 52.9
4450
50.8
mile 32.01
Omak Creek
Okanogan River
4472
17.0
COLUMBIA RIVER
mile 533.5

Figure 24.--Gaging stations in Okanogan River basin.

BEST COPY AVAILABLE

12438700 OKANAGAN RIVER NEAR OLIVER, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°06'53", long 119°33'50", approximately 75 ft upstream from drop structure No. 3, 0.8 mi downstream from Testalinden Creek, 4.2 mi south of Oliver, and at mile 93.4.

DRAINAGE AREA.--2,930 mi².

PERIOD OF RECORD.--October 1961 to current year in reports of Geological Survey. March 1944 to December 1948 and April 1952 to September 1961 in reports of Water Survey of Canada.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Regulation by control dams at outlets of Okanagan and Skaha Lakes. Diversion for irrigation.

COOPERATION.--This station is maintained by Canada under agreement with the United States subsequent to Feb. 14, 1965.

AVERAGE DISCHARGE.--35 years (water years 1945-47, 1953-56, 1958-83), 639 ft³/s, 463,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft³/s May 27, 1974, gage height, 7.07 ft; minimum, 55.9 ft³/s Jan. 30, 1963, gage height, 0.63 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 699 ft³/s May 25, gage height, 3.27 ft; minimum daily, 193 ft³/s June 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	396	360	438	316	353	330	326	357	558	340	276	287
2	410	382	435	307	345	330	328	389	519	325	286	293
3	410	392	428	304	345	333	332	484	502	313	296	329
4	410	396	424	309	345	333	330	463	477	308	325	396
5	403	406	367	314	343	333	329	413	459	299	331	428
6	399	410	273	318	343	334	327	392	449	279	317	459
7	399	403	246	324	341	332	327	396	481	252	325	473
8	399	406	237	325	336	332	325	389	484	232	360	477
9	396	406	239	324	339	331	332	364	410	250	371	477
10	399	406	246	320	334	331	341	353	351	273	367	466
11	424	406	255	316	334	331	360	345	308	280	347	463
12	431	413	260	316	337	329	389	332	275	291	327	410
13	435	424	261	316	336	330	417	331	264	294	307	364
14	428	420	263	315	335	329	456	367	256	286	285	338
15	420	417	266	315	331	328	477	399	254	294	280	349
16	403	413	267	316	327	327	498	396	246	324	281	349
17	396	403	209	314	327	329	452	417	222	349	284	345
18	389	403	424	317	326	329	406	463	222	337	284	364
19	431	403	371	319	328	328	364	491	233	301	276	382
20	428	410	343	324	333	329	349	505	227	280	284	389
21	424	406	322	326	334	330	342	509	212	275	308	389
22	431	406	320	327	334	330	331	608	193	305	307	360
23	428	420	329	327	333	328	324	629	204	290	294	343
24	428	438	325	327	333	329	320	640	216	264	291	360
25	417	435	327	328	333	329	346	671	216	273	294	357
26	413	428	325	328	331	328	410	615	209	283	302	350
27	410	431	320	330	332	330	385	572	203	282	301	343
28	410	431	318	341	332	332	341	583	213	273	301	338
29	410	428	320	353	---	329	326	622	420	277	300	324
30	410	428	323	360	---	330	332	608	392	281	296	332
31	392	---	322	360	---	326	---	594	---	271	286	---
TOTAL	12779	12330	9803	10036	9400	10229	10922	14697	9675	8981	9489	11334
MEAN	412	411	316	324	336	330	364	474	323	290	306	378
MAX	435	438	438	360	353	334	498	671	558	349	371	477
MIN	389	360	209	304	326	326	320	331	193	232	276	287
AC-FT	25350	24460	19440	19910	18640	20290	21660	29150	19190	17810	18820	22480

CAL YR 1984 TOTAL 358442 MEAN 979 MAX 2530 MIN 209 AC-FT 711000
WTR YR 1985 TOTAL 129675 MEAN 355 MAX 671 MIN 193 AC-FT 257200

0309

12439000 OSOYOOS LAKE NEAR OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°57'24", long 119°26'18", in NW¼NE¼ sec.21, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on west shore 1.0 mi north of Oroville, 3.0 mi south of international boundary, and at mile 79.5.

DRAINAGE AREA.--3,132 mi^2.

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1346: Drainage area. WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1928, nonrecording gage, and Sept. 2, 1928, to Nov. 9, 1929, water-stage recorder, 100 ft south of international boundary. Nov. 10, 1929, to Sept. 7, 1930, Mar. 22, 1952, to Sept. 23, 1953, June 25, 1955, to Apr. 11, 1956, nonrecording gage, and Sept. 8, 1930, to Mar. 21, 1952, Sept. 24, 1953, to June 24, 1955, Apr. 12, 1956, to Feb. 7, 1969, water-stage recorder, at site 1.0 mi south of international boundary. All elevations prior to Oct. 1, 1944, at datum 2.39 ft lower. To convert from present datum to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft; to convert from present datum to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft.

REMARKS.--Approximately 44,000 acres are irrigated upstream from station in Canada. Elevation may occasionally be affected by dam at Zosel's mill in Oroville. U.S. Geological Survey satellite telemeter at this station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 917.11 ft June 2, 3, 1972; minimum, 908.82 ft, present datum, Oct. 14, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1894, reached an elevation of 918.8 ft plus or minus 0.5 ft, present datum, 1.0 mi downstream from present lake outlet, from floodmark on old Okanogan Hotel Building, documented in 1930 from the diary of Mr. and Mrs. Stansbury, operators of the hotel in 1894.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.27 ft May 25; minimum, 910.08 ft Feb. 6 (mean during wave action).

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.95	911.03	911.00	910.44	910.13	910.14	910.27	910.53	911.21	910.93	910.91	910.89
2	910.95	911.03	911.00	910.42	910.14	910.14	910.28	910.54	911.19	910.97	910.93	910.89
3	910.95	911.01	911.00	910.40	910.13	910.13	910.29	910.58	911.18	911.01	910.92	910.87
4	910.94	911.00	910.99	910.38	910.12	910.13	910.28	910.64	911.18	911.03	910.95	910.87
5	910.95	910.98	910.96	910.35	910.11	910.14	910.28	910.67	911.16	911.05	910.98	910.88
6	910.93	910.97	910.91	910.33	910.10	910.14	910.28	910.69	911.12	911.07	910.99	910.95
7	910.93	910.96	910.84	910.32	910.11	910.14	910.28	910.72	911.13	911.08	911.03	911.00
8	910.94	910.95	910.79	910.30	910.12	910.14	910.28	910.75	911.15	911.05	911.04	911.03
9	910.93	910.94	910.72	910.28	910.12	910.15	910.28	910.74	911.14	911.02	911.07	911.06
10	910.94	910.93	910.67	910.26	910.12	910.14	910.25	910.75	911.12	911.00	911.11	911.10
11	910.97	910.93	910.61	910.25	910.14	910.14	910.23	910.76	911.08	910.98	911.08	911.13
12	910.98	910.95	910.58	910.24	910.15	910.14	910.27	910.73	911.06	910.94	911.09	911.18
13	911.00	910.98	910.53	910.23	910.15	910.14	910.30	910.71	911.01	910.94	911.04	911.15
14	911.02	910.99	910.50	910.21	910.14	910.14	910.37	910.79	910.98	910.92	911.02	911.13
15	911.03	910.99	910.49	910.21	910.15	910.15	910.42	910.86	910.97	910.94	911.03	911.10
16	911.03	910.99	910.46	910.19	910.15	910.15	910.49	910.92	910.95	910.96	910.97	911.08
17	911.03	910.97	910.50	910.18	910.14	910.15	910.55	910.98	910.90	910.96	910.96	911.06
18	911.02	910.97	910.51	910.18	910.13	910.15	910.60	911.04	910.89	910.99	910.96	911.03
19	911.01	910.97	910.60	910.17	910.12	910.16	910.62	911.09	910.89	911.02	910.96	911.05
20	911.02	910.99	910.62	910.21	910.12	910.18	910.61	911.09	910.90	911.03	910.95	911.05
21	911.02	910.98	910.60	910.21	910.12	910.20	910.60	911.09	910.87	911.03	910.94	911.07
22	911.03	910.95	910.59	910.19	910.13	910.21	910.58	911.12	910.85	911.02	910.95	911.07
23	911.04	910.95	910.61	910.17	910.13	910.22	910.57	911.19	910.84	911.02	910.95	911.06
24	911.05	910.97	910.59	910.16	910.13	910.23	910.56	911.21	910.79	910.99	910.95	911.06
25	911.07	910.97	910.59	910.15	910.14	910.22	910.55	911.24	910.79	910.96	910.96	911.07
26	911.09	910.97	910.58	910.14	910.14	910.22	910.53	911.23	910.76	910.96	910.95	911.05
27	911.08	910.96	910.58	910.13	910.14	910.23	910.56	911.21	910.76	910.91	910.94	911.03
28	911.10	910.98	910.55	910.14	910.14	910.25	910.57	911.20	910.76	910.91	910.94	910.99
29	911.10	910.98	910.53	910.13	---	910.26	910.56	911.23	910.78	910.90	910.93	910.99
30	911.12	911.00	910.49	910.12	---	910.27	910.54	911.23	910.86	910.91	910.94	910.97
31	911.09	---	910.46	910.13	---	910.27	---	911.22	---	910.90	910.91	---
MEAN	911.01	910.97	910.66	910.23	910.13	910.18	910.43	910.93	910.98	910.98	910.98	911.03
MAX	911.12	911.03	911.00	910.44	910.15	910.27	910.62	911.24	911.21	911.08	911.11	911.18
MIN	910.93	910.93	910.46	910.12	910.10	910.13	910.23	910.53	910.76	910.90	910.91	910.87

CAL YR 1984 MEAN 911.53 MAX 913.59 MIN 909.91
WTR YR 1985 MEAN 910.71 MAX 911.24 MIN 910.10

12439150 OKANOGAN RIVER AT BRIDGE STREET, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°56'20", long 119°25'36", in SW¼NW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 15 ft upstream from Cherry Street Bridge in Oroville, 700 ft upstream from Tonasket Creek, 1.0 mi downstream from Osoyoos Lake, and at mile 78.0.

DRAINAGE AREA.--3,133 m^2.

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to November 1944 (fragmentary) and December 1944 to September 1964 gage heights available in file of Washington office.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1944, nonrecording gage and Nov. 15, 1944, to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft higher and Oct. 1, 1945, to Sept. 30, 1975, at datum 900.00 ft higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft; to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 916.99 ft June 2, 1972; minimum recorded, 907.30 ft Mar. 3, 4, 1948.

EXREMES FOR CURRENT YEAR.--Maximum elevation, 911.25 ft Oct. 30; minimum, 908.17 ft Dec. 18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.77	910.87	910.85	910.19	910.00	910.01	910.04	910.44	911.08	910.89	910.88	910.83
2	910.77	910.88	910.85	910.17	910.01	910.00	910.06	910.45	911.06	910.93	910.90	910.84
3	910.77	910.87	910.84	910.16	910.00	909.99	910.07	910.50	911.05	910.97	910.89	910.81
4	910.76	910.86	910.83	910.14	910.00	909.99	910.11	910.56	911.06	910.98	910.92	910.80
5	910.77	910.84	910.80	910.13	910.00	909.99	910.11	910.58	911.05	911.01	910.95	910.81
6	910.75	910.83	910.75	910.14	910.00	910.00	910.12	910.60	911.00	911.04	910.96	910.88
7	910.75	910.82	910.67	910.14	910.00	910.00	910.12	910.64	911.02	911.03	911.00	910.94
8	910.76	910.81	910.62	910.12	910.00	910.00	910.12	910.68	911.04	910.98	911.00	910.97
9	910.76	910.80	910.56	910.11	910.00	910.00	910.04	910.67	911.02	910.96	911.03	910.98
10	910.77	910.79	910.51	910.10	909.99	910.01	909.94	910.67	911.01	910.95	911.11	911.02
11	910.80	910.79	910.44	910.09	909.99	910.00	910.01	910.70	910.99	910.92	911.04	911.03
12	910.82	910.81	910.41	910.07	910.00	910.01	910.13	910.65	910.98	910.89	911.05	911.05
13	910.84	910.85	910.35	910.06	910.00	910.00	910.14	910.64	910.94	910.91	910.99	911.02
14	910.87	910.86	910.32	910.05	910.00	910.00	910.26	910.76	910.91	910.88	910.97	911.02
15	910.88	910.85	910.33	910.04	910.01	910.00	910.30	910.83	910.92	910.90	911.01	911.00
16	910.89	910.85	910.34	910.02	910.01	909.99	910.38	910.89	910.91	910.93	910.92	910.97
17	910.89	910.83	909.71	910.01	910.01	910.00	910.45	910.94	910.85	910.93	910.92	910.97
18	910.88	910.82	908.21	910.00	910.01	910.00	910.51	910.99	910.85	910.96	910.92	910.93
19	910.86	910.83	908.66	910.00	910.00	910.00	910.52	911.01	910.85	910.98	910.92	910.96
20	910.88	910.84	909.59	910.04	910.00	909.99	910.50	910.98	910.88	910.99	910.92	910.97
21	910.88	910.85	910.13	910.03	909.99	910.01	910.47	910.99	910.83	910.99	910.89	910.99
22	910.89	910.80	910.18	910.02	909.99	910.00	910.45	911.03	910.81	910.99	910.90	910.99
23	910.90	910.81	910.19	910.02	909.98	909.99	910.45	911.08	910.83	910.99	910.90	910.98
24	910.92	910.82	910.18	910.01	910.00	910.00	910.45	911.09	910.76	910.95	910.89	910.98
25	910.94	910.82	910.19	910.01	910.00	910.01	910.44	911.12	910.76	910.92	910.93	910.97
26	910.97	910.82	910.22	910.00	910.00	909.99	910.39	911.08	910.71	910.93	910.91	910.98
27	910.96	910.80	910.29	910.00	910.00	910.00	910.42	911.06	910.71	910.88	910.89	910.95
28	910.98	910.82	910.31	909.99	910.00	910.02	910.45	911.07	910.72	910.87	910.89	910.88
29	911.00	910.82	910.30	909.98	---	910.02	910.45	911.11	910.74	910.87	910.88	910.87
30	911.04	910.84	910.25	909.98	---	910.04	910.43	911.08	910.81	910.89	910.89	910.85
31	911.00	---	910.22	910.00	---	910.05	---	911.07	---	910.85	910.83	---
MEAN	910.86	910.83	910.26	910.06	910.00	910.00	910.28	910.84	910.91	910.94	910.94	910.94
MAX	911.04	910.88	910.85	910.19	910.01	910.05	910.52	911.12	911.08	911.04	911.11	911.05
MIN	910.75	910.79	908.21	909.98	909.98	909.99	909.94	910.44	910.71	910.85	910.85	910.80

CAL YR 1984 MEAN 911.16 MAX 913.02 MIN 908.21
WTR YR 1985 MEAN 910.57 MAX 911.12 MIN 908.21

12439300 TONASKET CREEK AT OROVILLE, WA

LOCATION.--Lat 48°56'35", long 119°24'45", in NW¼NE¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank 7 ft downstream from road bridge, 1.0 mi northeast of Oroville, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--60.1 mi².

PERIOD OF RECORD.--March 1967 to current year.

REVISED RECORDS.--WDR WA-73-1: 1972(M).

GAGE.--Water-stage recorder. Elevation of gage is 960 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 31 to Nov. 3, Dec. 2 to Mar. 19. Records fair except for estimated daily discharges and discharges for July 15-24 and July 29 to Sept. 30, which are poor. Two small diversions for irrigation of 45 acres upstream from station.

AVERAGE DISCHARGE.--18 years, 3.65 ft³/s, 0.82 in/yr, 2,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 455 ft³/s Feb. 27, 1973, gage height, 5.47 ft, from rating curve extended above 50 ft³/s on basis of slope-area measurement of peak flow; no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Peak of Apr. 12, 1950, was 484 ft³/s at site 0.5 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 8	1430	(a)	*3.14	Apr. 10	0200	*19	2.65

Minimum daily discharge, 0.04 ft³/s Aug. 31.

(a) Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	1.7	1.4	1.3	1.4	2.5	3.3	1.2	3.6	.14	.22	.06
2	6.3	2.0	1.2	1.3	1.3	2.5	7.1	1.1	3.6	.16	.17	.17
3	5.8	2.4	.96	1.4	1.1	2.5	8.6	2.3	3.5	.11	.14	.17
4	6.9	2.8	.86	1.4	1.1	2.5	7.1	2.1	3.0	.19	.12	.14
5	8.2	2.9	.82	1.5	1.2	2.5	7.5	1.8	2.3	.27	.12	.14
6	11	3.0	.86	1.5	1.4	2.7	11	1.6	2.2	.35	.10	.30
7	13	3.3	.96	1.6	1.5	2.7	12	1.4	2.6	.29	.08	.79
8	13	3.5	1.1	1.6	1.5	2.8	12	1.4	2.8	.18	.07	1.3
9	11	3.4	1.1	1.6	1.5	2.8	16	1.3	1.6	.22	.07	1.6
10	5.3	3.4	1.1	1.6	1.7	3.0	18	1.1	1.2	.17	.16	1.7
11	6.2	3.6	1.1	1.6	2.0	3.0	17	2.0	.97	.23	.25	1.7
12	6.3	4.7	1.1	1.6	2.0	3.2	15	2.3	1.2	.23	.22	1.7
13	2.8	6.6	1.1	1.6	2.0	3.2	14	1.7	1.3	.35	.22	1.5
14	2.5	6.1	1.1	1.7	1.9	3.4	13	3.2	1.1	.38	.20	1.5
15	2.3	4.1	1.1	1.7	1.8	3.4	9.8	2.5	.95	.22	.17	1.4
16	2.1	3.6	1.1	1.7	1.8	3.6	13	1.4	.85	.15	.15	1.2
17	2.1	3.0	1.0	1.7	1.8	3.8	14	1.3	.59	.17	.14	1.2
18	2.2	3.0	.98	1.7	1.8	4.1	12	1.7	.41	.16	.12	1.2
19	1.9	3.3	.94	1.7	1.9	4.3	8.2	2.1	.35	.15	.12	1.2
20	1.4	3.6	.94	1.7	2.0	4.3	5.7	2.7	.55	.18	.10	1.1
21	1.4	3.1	1.1	1.7	2.0	4.2	4.5	3.1	.35	.21	.10	1.0
22	1.3	2.5	1.3	1.7	2.0	3.9	3.4	3.7	.43	.27	.09	1.0
23	1.3	2.8	1.5	1.8	2.1	3.4	3.1	4.9	.50	.37	.08	1.1
24	1.4	2.6	1.6	1.8	2.2	3.1	2.5	3.3	.74	.41	.07	.95
25	2.1	2.5	1.6	1.8	2.4	3.0	2.0	5.6	.42	.37	.08	.95
26	2.3	2.4	1.6	1.7	2.5	3.0	2.2	5.9	.89	.65	.07	.91
27	1.9	2.4	1.6	1.7	2.5	2.5	2.4	6.2	.12	.34	.06	.95
28	2.0	2.4	1.5	1.6	2.5	2.1	1.9	6.7	.09	.42	.05	.86
29	1.9	2.3	1.4	1.5	---	2.2	1.5	5.1	.11	.39	.05	.81
30	1.7	2.4	1.3	1.5	---	2.0	1.4	3.9	.15	.31	.05	.77
31	1.6	---	1.3	1.5	---	2.0	---	3.9	---	.26	.04	---
TOTAL	135.5	95.4	36.62	49.8	50.9	94.2	249.2	88.5	38.47	8.30	3.68	29.37
MEAN	4.37	3.18	1.18	1.61	1.82	3.04	8.31	2.85	1.28	.27	.12	.98
MAX	13	6.6	1.6	1.8	2.5	4.3	18	6.7	3.6	.65	.25	1.7
MIN	1.3	1.7	.82	1.3	1.1	2.0	1.4	1.1	.09	.11	.04	.06
CFSM	.07	.05	.02	.03	.03	.05	.14	.05	.02	.00	.00	.02
IN.	.08	.06	.02	.03	.03	.06	.15	.05	.02	.01	.00	.02
AC-FT	269	189	73	99	101	187	494	176	76	16	7.3	58

CAL YR 1984 TOTAL 4136.30 MEAN 11.3 MAX 51 MIN .82 CFSM .19 IN. 2.56 AC-FT 8200
WTR YR 1985 TOTAL 879.94 MEAN 2.41 MAX 18 MIN .04 CFSM .04 IN. .54 AC-FT 1750

BEST COPY AVAILABLE

12439400 OKANOGAN RIVER AT ZOSEL MILLPOND, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'55", long 119°25'05", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 0.4 mi downstream from Tonasket Creek, 1.6 mi downstream from Osoyoos Lake, and at mile 77.41.

DRAINAGE AREA.--3,195 mi^2.

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only, published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to March 1944 (fragmentary) and April 1944 to September 1964 gage heights available in file of Washington office.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Mar. 27, 1944, nonrecording gage and Mar. 28, 1944, to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft higher and Oct. 1, 1945, to Sept. 30, 1975, at datum 900.00 ft higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft; to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 916.91 ft June 2, 1972; minimum recorded, 905.90 ft Jan. 3, 1959, but may have been lower during period of no gage-height record Mar. 3 or 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.17 ft Oct. 30; minimum, 906.24 ft Dec. 18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.63	910.73	910.71	909.92	909.80	909.83	909.84	910.37	910.91	910.87	910.87	910.79
2	910.63	910.74	910.71	909.91	909.81	909.82	909.87	910.40	910.90	910.90	910.89	910.79
3	910.63	910.73	910.70	909.90	909.80	909.81	909.90	910.45	910.89	910.95	910.87	910.77
4	910.62	910.72	910.69	909.89	909.78	909.80	909.95	910.51	910.90	910.95	910.91	910.74
5	910.63	910.70	910.66	909.89	909.78	909.80	909.95	910.53	910.88	910.98	910.94	910.74
6	910.61	910.69	910.60	909.91	909.77	909.81	909.96	910.55	910.84	911.02	910.94	910.82
7	910.61	910.68	910.51	909.92	909.79	909.80	909.96	910.59	910.86	910.99	910.98	910.88
8	910.62	910.67	910.46	909.92	909.80	909.80	909.96	910.64	910.89	910.90	910.98	910.91
9	910.62	910.65	910.39	909.90	909.79	909.81	909.72	910.62	910.88	910.89	911.00	910.93
10	910.65	910.64	910.33	909.89	909.78	909.81	909.50	910.63	910.91	910.89	911.08	910.94
11	910.68	910.64	910.26	909.89	909.80	909.80	909.74	910.66	910.90	910.85	911.00	910.94
12	910.69	910.66	910.22	909.87	909.82	909.81	909.99	910.61	910.90	910.83	911.00	910.93
13	910.71	910.71	910.15	909.85	909.81	909.80	909.98	910.61	910.88	910.87	910.93	910.90
14	910.75	910.72	910.11	909.83	909.81	909.79	910.14	910.77	910.85	910.85	910.93	910.93
15	910.76	910.73	910.13	909.83	909.82	909.79	910.19	910.84	910.88	910.87	910.97	910.90
16	910.77	910.72	910.15	909.80	909.82	909.78	910.27	910.89	910.88	910.90	910.89	910.88
17	910.77	910.69	909.15	909.81	909.80	909.79	910.34	910.94	910.82	910.90	910.88	910.88
18	910.76	910.69	906.32	909.80	909.78	909.79	910.41	910.98	910.82	910.92	910.89	910.85
19	910.74	910.69	907.18	909.80	909.78	909.79	910.43	910.98	910.83	910.94	910.88	910.90
20	910.76	910.72	908.98	909.83	909.78	909.78	910.40	910.89	910.86	910.95	910.89	910.90
21	910.77	910.72	909.78	909.82	909.79	909.80	910.38	910.91	910.81	910.93	910.85	910.93
22	910.77	910.65	909.86	909.80	909.80	909.78	910.36	910.97	910.79	910.93	910.87	910.92
23	910.79	910.66	909.88	909.81	909.79	909.77	910.36	910.96	910.81	910.94	910.87	910.92
24	910.81	910.68	909.87	909.79	909.81	909.79	910.36	910.94	910.74	910.90	910.86	910.92
25	910.83	910.69	909.88	909.79	909.82	909.79	910.35	910.95	910.74	910.87	910.90	910.90
26	910.87	910.68	909.94	909.78	909.82	909.77	910.30	910.88	910.68	910.89	910.87	910.93
27	910.85	910.66	910.02	909.78	909.81	909.79	910.33	910.86	910.68	910.84	910.86	910.89
28	910.88	910.68	910.05	909.77	909.81	909.81	910.36	910.87	910.70	910.83	910.85	910.82
29	910.90	910.68	910.05	909.78	---	909.82	910.36	910.92	910.71	910.83	910.85	910.81
30	910.96	910.71	910.00	909.77	---	909.84	910.34	910.87	910.79	910.86	910.86	910.79
31	910.92	---	909.95	909.80	---	909.85	---	910.89	---	910.83	910.81	---
MEAN	910.74	910.69	909.93	909.84	909.80	909.80	910.13	910.76	910.83	910.90	910.91	910.87
MAX	910.96	910.74	910.71	909.92	909.82	909.85	910.43	910.98	910.91	911.02	911.08	910.94
MIN	910.61	910.64	906.32	909.77	909.77	909.77	909.50	910.37	910.68	910.83	910.81	910.74

CAL YR 1984 MEAN 910.61 MAX 912.36 MIN 906.32
WTR YR 1985 MEAN 910.44 MAX 911.08 MIN 906.32

12439500 OKANOGAN RIVER AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'51", long 119°25'09", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 20 ft downstream from Burlington Northern trestle, 0.5 mi downstream from Tonasket Creek, 1.7 mi downstream from Osoyoos Lake, 3.2 mi upstream from Similkameen River, and at mile 77.3.

DRAINAGE AREA.--3,195 mi^2.

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft above National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations above National Geodetic Vertical Datum of 1929. Prior to Oct. 26, 1944, nonrecording gage at Zosel milldam 200 ft upstream, Oct. 26, 1944, to Mar. 6, 1948, water-stage recorder on railroad trestle 20 ft upstream, both at same datum. Auxiliary water-stage recorder 0.5 mi downstream used during high-water periods; May 15, 1946, to Apr. 9, 1948, nonrecording gage at same site, both at datum 900.00 ft above National Geodetic Vertical Datum of 1929. To convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft.

REMARKS.--Records good except estimated daily discharges and those for May 19 to June 5, which are fair. Diversions made to irrigate approximately 44,000 acres in Canada and minor diversions in the United States upstream from station. Natural regulation in several large lakes and artificial regulation in Okanagan Lake 46.7 mi upstream for flood control and irrigation; also regulated by Zosel milldam at Oroville, 200 ft upstream from gage.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--43 years, 691 ft^3/s, 500,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,730 ft^3/s June 14, 1972; maximum elevation, 916.89 ft June 2, 1972, at datum then in use (backwater from Similkameen River); minimum daily discharge, 2,270 ft^3/s reverse flow May 29, 1948; minimum elevation, 903.98 ft Mar. 1, 1948, at datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 859 ft^3/s May 25; maximum elevation, 910.43 ft May 25 (backwater from Similkameen River); minimum daily discharge, 30 ft^3/s Dec. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443	504	476	e425	420	413	381	383	458	130	168	310
2	443	504	476	e425	422	409	384	360	474	136	170	313
3	443	498	476	e420	422	407	380	367	504	143	174	305
4	438	498	471	e415	422	405	381	373	529	145	181	354
5	438	493	476	e415	422	403	380	376	532	151	187	374
6	432	493	471	e415	422	402	380	380	507	158	195	383
7	438	482	460	e415	422	400	380	371	514	219	215	388
8	438	482	460	e415	422	400	375	368	526	297	241	393
9	427	476	454	e415	425	396	473	370	506	251	275	395
10	421	476	449	e420	427	390	538	370	428	245	293	434
11	427	476	438	e420	427	390	425	370	375	267	288	471
12	427	476	438	e425	427	390	367	366	381	246	335	560
13	427	482	432	e425	427	388	396	319	320	183	333	527
14	432	482	427	e430	422	385	400	207	284	172	290	491
15	432	482	432	434	421	385	400	197	274	169	292	485
16	438	482	432	431	423	384	406	211	267	171	270	481
17	438	476	e120	422	427	382	412	230	224	167	260	479
18	438	476	e30	416	427	378	417	278	169	170	260	443
19	432	476	e90	414	427	378	421	416	170	176	260	417
20	432	482	e150	417	427	370	416	578	165	205	265	418
21	432	482	e220	416	418	370	416	536	161	230	260	429
22	432	471	e320	416	416	371	415	509	158	230	260	427
23	427	471	487	417	416	372	416	655	158	233	260	427
24	421	471	465	417	414	375	416	563	154	229	263	425
25	421	476	465	416	411	375	416	577	153	224	271	421
26	427	476	438	416	411	375	413	663	150	228	268	421
27	427	471	e425	416	411	375	414	641	130	219	265	409
28	427	471	e425	416	414	377	415	563	107	221	264	394
29	427	471	e425	416	---	379	417	564	116	197	264	390
30	432	476	e425	416	---	380	420	580	121	169	288	385
31	460	---	e425	419	---	380	---	510	---	167	314	---
TOTAL	13417	14432	12178	12995	11792	11984	12270	13251	9015	6148	7929	12549
MEAN	433	481	393	419	421	387	409	427	301	198	256	418
MAX	460	504	487	434	427	413	538	663	532	297	335	560
MIN	421	471	30	414	411	370	367	197	107	130	168	305
AC-FT	26610	28630	24160	25780	23390	23770	24340	26280	17880	12190	15730	24890

CAL YR 1984	TOTAL	382185	MEAN	1044	MAX	2510	MIN	30	AC-FT	758100
WTR YR 1985	TOTAL	137960	MEAN	378	MAX	663	MIN	30	AC-FT	273600

e Estimated.

12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WA
(International gaging station)

LOCATION.--Lat 48°59'05", long 119°37'02", in NW¼ sec.7, T.40 N., R.26 E., Okanogan County, Hydrologic Unit 17020007, on left bank 1,000 ft upstream from Oroville-Tonasket Irrigation District canal intake, 1.6 mi northeast of Nighthawk, 3.8 mi downstream from Palmer Creek, and at mile 15.8.

DRAINAGE AREA.--3,550 mi², approximately.

PERIOD OF RECORD.--May 1911 to current year (prior to September 1928, mean monthly discharge included Oroville-Tonasket Irrigation District canal). Published as "near Oroville" 1911-28.

REVISED RECORDS.--WSP 1183: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,137.70 ft above National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Sept. 11, 1928, staff gages at sites 7 mi downstream (below Oroville-Tonasket Irrigation District canal) at various datums.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow at high stages regulated by natural diversion into and release from Palmer Lake. Several small diversions upstream from station for irrigation of about 2,900 acres in the United States in 1946 and approximately 10,500 acres in Canada in 1957. National Weather Service satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--74 years, 2,292 ft³/s, 1,661,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,800 ft³/s June 1, 1972; maximum gage height, 18.78 ft May 31, 1972; minimum discharge, 65 ft³/s Jan. 3, 1974, gage height, 1.59 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,400 ft³/s May 24, gage height, 11.29 ft; minimum daily discharge, 170 ft³/s Dec. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	530	461	482	e280	e340	459	441	1940	10700	2430	527	265
2	530	408	480	e260	e340	461	457	2020	10800	2270	523	263
3	525	448	395	e250	e330	456	538	2500	11300	2140	524	264
4	530	560	e260	e260	e330	449	745	3380	11100	2070	526	262
5	530	640	e210	e300	e330	449	772	3310	10900	2010	513	261
6	515	628	e190	e330	e340	437	722	3150	9730	1910	484	274
7	520	621	e220	e360	e360	423	708	3140	8730	1790	466	299
8	515	605	241	e410	e380	414	715	3260	9150	1670	454	493
9	500	577	383	e430	e430	402	759	3320	8590	1570	443	519
10	505	568	413	e440	470	403	907	3290	7650	1490	446	511
11	544	554	401	e440	478	399	1230	3330	7100	1430	459	508
12	617	556	419	e440	491	400	1590	3190	6890	1360	471	510
13	722	570	425	e440	490	403	2010	3070	7140	1280	452	521
14	760	567	406	e440	497	411	2540	3090	6810	1200	428	600
15	748	552	414	e440	494	420	3100	3160	6600	1120	402	566
16	706	521	e220	e450	479	413	3230	3400	6440	1040	383	557
17	671	478	e190	e450	481	418	3430	4740	5780	1000	370	551
18	638	490	e170	e460	489	419	3330	7470	5280	1060	357	540
19	614	530	e190	e480	482	428	3060	10400	5230	1110	344	610
20	593	547	e230	e500	470	447	2830	12000	5270	989	330	632
21	582	535	e250	e500	464	472	2630	12300	4960	899	331	618
22	584	517	e280	e500	460	471	2440	12900	4420	831	335	586
23	572	474	e340	e480	457	463	2280	13900	4040	773	345	558
24	571	458	e380	e460	456	454	2140	14700	3640	743	337	532
25	591	499	e430	e450	459	443	2020	15100	3350	721	324	507
26	607	483	e450	e440	462	428	1900	14200	3110	692	309	487
27	741	458	e450	e430	461	438	1830	13100	2920	651	299	465
28	739	443	e430	e410	448	443	1930	13000	2810	616	290	447
29	698	463	e380	e390	---	448	2030	13900	2700	586	281	436
30	651	482	e340	e380	---	443	1970	12800	2560	564	274	427
31	e540	---	e300	e360	---	435	---	11400	---	541	268	---
TOTAL	18689	15693	10369	12660	12168	13449	54284	230460	195700	38556	12295	14069
MEAN	603	523	334	408	435	434	1809	7434	6523	1244	397	469
MAX	760	640	482	500	497	472	3430	15100	11300	2430	527	632
MIN	500	408	170	250	330	399	441	1940	2560	541	268	261
AC-FT	37070	31130	20570	25110	24140	26680	107700	457100	388200	76480	24390	27910

CAL YR 1984 TOTAL 749615 MEAN 2048 MAX 15000 MIN 170 AC-FT 1487000
WTR YR 1985 TOTAL 628392 MEAN 1722 MAX 15100 MIN 170 AC-FT 1246000

e Estimated.

12445000 OKANOGAN RIVER NEAR TONASKET, WA

LOCATION.--Lat 48°37'57", long 119°27'38", in lot 3, sec.8, T.36 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft upstream from Chewiliken Creek, 5.2 mi south of Tonasket, and at mile 50.8.

DRAINAGE AREA.--7,260 mi^2, approximately.

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 4-10, Dec. 17 to Feb. 9, May 27-29. Records good except for estimated daily discharges and periods of sluggish intakes May 16-24, May 30 to Aug. 26, which are fair. Diversions upstream from station for irrigation of about 10,700 acres in the United States and 55,000 acres in Canada. Flow affected by regulation of Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--56 years, 2,952 ft^3/s, 2,139,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft^3/s June 2, 1972, gage height, 22.54 ft; minimum recorded, 126 ft^3/s Sept. 5, 1931, gage height, 3.43 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,600 ft^3/s May 25, gage height, 13.56 ft^3/s: minimum daily, 260 ft^3/s Dec. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	991	1050	1050	840	840	931	931	2250	11500	2470	556	448
2	981	1060	1040	810	820	920	947	2180	11100	2300	555	448
3	974	1020	1020	800	820	919	962	2230	11400	2150	544	433
4	977	1050	960	800	820	918	1040	2850	11500	2040	552	423
5	983	1160	840	850	820	915	1200	3300	11400	1990	552	472
6	980	1220	760	880	820	917	1210	3360	10800	1910	546	510
7	967	1200	740	930	820	907	1180	3290	9580	1820	526	566
8	971	1190	740	940	840	894	1180	3270	9120	1770	524	615
9	966	1170	780	940	860	889	1190	3320	9370	1680	538	793
10	956	1150	900	950	942	885	1330	3360	8270	1540	566	839
11	972	1140	951	960	958	880	1510	3370	7440	1490	586	877
12	1020	1130	941	960	979	884	1700	3370	7010	1440	599	926
13	1100	1150	953	960	981	882	2100	3300	7090	1350	614	1010
14	1190	1160	948	960	983	889	2550	3210	6980	1240	606	987
15	1220	1140	941	960	987	899	3050	3150	6550	1170	566	1030
16	1210	1120	969	960	981	906	3390	3410	6530	1080	534	1000
17	1160	1090	940	980	971	912	3470	4130	6080	1010	509	992
18	1130	1060	420	980	975	917	3570	6250	5430	988	499	979
19	1100	1070	260	980	981	920	3480	7730	5120	1060	490	946
20	1100	1120	300	980	983	928	3280	10000	5130	1060	457	990
21	1070	1130	400	1000	988	948	3060	12000	5010	983	448	1010
22	1060	1100	500	1000	974	953	2860	12500	4610	932	444	994
23	1060	1090	660	1000	973	955	2730	12900	4240	875	444	960
24	1050	1050	900	1000	976	953	2580	14400	3900	828	452	935
25	1050	1040	920	1000	993	946	2430	15400	3570	789	467	905
26	1070	1070	980	980	995	929	2320	15300	3300	765	453	878
27	1080	1050	980	940	962	931	2230	14200	3060	743	415	851
28	1220	1040	960	920	942	940	2170	13600	2850	717	408	828
29	1210	1030	940	900	---	937	2220	14000	2720	679	399	813
30	1160	1050	900	880	---	945	2290	14200	2600	617	395	800
31	1090	---	860	860	---	940	---	12800	---	568	424	---
TOTAL	33068	33100	25453	28900	25984	28489	64160	228630	203260	40054	15668	24258
MEAN	1067	1103	821	932	928	919	2139	7375	6775	1292	505	809
MAX	1220	1220	1050	1000	995	955	3570	15400	11500	2470	614	1030
MIN	956	1020	260	800	820	880	931	2180	2600	568	395	423
AC-FT	65590	65650	50490	57320	51540	56510	127300	453500	403200	79450	31080	48120

CAL YR 1984 TOTAL 1121969 MEAN 3065 MAX 16000 MIN 260 AC-FT 2225000
WTR YR 1985 TOTAL 751024 MEAN 2058 MAX 15400 MIN 260 AC-FT 1490000

OKANOGAN RIVER BASIN

12447200 OKANOGAN RIVER AT MALOTT, WA
(National stream quality accounting network station)

LOCATION.--Lat 48°16'53", long 119°42'12", in SW¼ sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, on right bank 75 ft upstream from highway bridge at Malott, 0.1 mi upstream from Loup Loup Creek, and at mile 17.0.

DRAINAGE AREA.--8,080 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year. April 1958 to September 1965, published as "near Malott." Records published for both sites December 1965 to July 1967.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 783.55 ft above National Geodetic Vertical Datum of 1929. April 1958 to November 1965, water-stage recorder at site 3.9 mi downstream at National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 31 to Nov. 4, Dec. 3 to Mar. 7. Water-discharge records excellent except for estimated daily discharges, which are fair. Diversions upstream from station for irrigation of about 22,000 acres in the United States and 55,000 acres in Canada. Flow regulated by Okanagan and Skaha Lakes and by natural storage in other lakes. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--27 years, 3,107 ft³/s, 2,251,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft³/s June 3, 1972, gage height, 22.16 ft; minimum observed, 288 ft³/s Sept. 4, 1970, gage height, 2.03 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,500 ft³/s May 26, gage height, 11.66 ft; minimum daily, 300 ft³/s Dec. 19, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1170	1170	1240	890	910	1100	1070	2470	12200	2660	563	398
2	1170	1150	1220	840	900	1070	1080	2400	11600	2510	565	434
3	1160	1100	1130	840	900	1040	1100	2410	11700	2350	552	427
4	1150	1170	1050	870	900	1040	1120	2780	12000	2220	537	411
5	1150	1260	940	910	900	1040	1240	3680	11800	2160	546	402
6	1150	1370	860	950	900	1040	1390	3740	11500	2100	544	453
7	1150	1400	820	980	900	1040	1370	3590	10300	2020	519	498
8	1140	1390	820	990	900	1040	1360	3550	9560	1940	516	558
9	1140	1370	890	1000	920	1030	1360	3640	9950	1890	524	645
10	1140	1360	980	1000	1000	1020	1450	3710	9010	1750	547	855
11	1140	1350	1070	1000	1100	1010	1650	3720	8110	1650	584	895
12	1170	1360	1080	1000	1120	1010	1850	3700	7600	1610	599	944
13	1230	1380	1080	1000	1120	1010	2100	3590	7560	1540	597	996
14	1320	1400	1080	1000	1120	1010	2530	3480	7580	1410	625	1080
15	1390	1370	1060	1010	1120	1020	3040	3360	7170	1330	579	1070
16	1420	1340	990	1010	1120	1030	3640	3380	7070	1230	534	1100
17	1380	1320	960	1020	1120	1030	3830	3560	6730	1150	508	1080
18	1340	1300	450	1020	1120	1050	4010	4850	6020	1090	490	1070
19	1310	1260	300	1030	1110	1060	3950	7690	5590	1110	479	1050
20	1290	1310	330	1040	1110	1060	3630	10600	5570	1210	458	1020
21	1280	1340	430	1070	1110	1070	3380	12000	5510	1110	435	1080
22	1250	1320	530	1080	1100	1090	3170	12400	5120	1050	431	1100
23	1250	1300	680	1090	1100	1100	3030	13100	4640	991	427	1070
24	1250	1290	930	1090	1110	1100	2860	14100	4240	929	426	1030
25	1240	1240	970	1100	1120	1080	2690	15000	3840	881	438	1010
26	1250	1240	1020	1090	1120	1060	2570	15400	3530	826	448	971
27	1260	1280	1020	1090	1120	1080	2490	14900	3250	780	427	943
28	1300	1260	1010	1060	1110	1080	2420	14000	3040	755	397	922
29	1420	1240	990	1010	---	1080	2400	14100	2890	721	383	904
30	1370	1240	970	960	---	1070	2500	14600	2780	674	375	893
31	1250	---	940	930	---	1080	---	13600	---	603	374	---
TOTAL	38630	38880	27840	30970	29180	32640	70280	233100	217460	44250	15427	25309
MEAN	1246	1296	898	999	1042	1053	2343	7519	7249	1427	498	844
MAX	1420	1400	1240	1100	1120	1100	4010	15400	12200	2660	625	1100
MIN	1140	1100	300	840	900	1010	1070	2400	2780	603	374	398
AC-FT	76620	77120	55220	61430	57880	64740	139400	462400	431300	87770	30600	50200

CAL YR 1984 TOTAL 1239050 MEAN 3385 MAX 16200 MIN 300 AC-FT 2458000
WTR YR 1985 TOTAL 803966 MEAN 2203 MAX 15400 MIN 300 AC-FT 1595000

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-62, 1963-70 (partial-record station), 1972, 1975 to current year. Published as "near Brewster" prior to 1964 and as "near Malott" 1963-66 (station 12447300).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: November 1969 to June 1971.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
OCT 17...	1200	1380	215	8.30	8.5	1.4	11.0	97	22	K7	130	22
FEB 04...	1200	1270	340	8.00	0.0	0.6	13.5	95	K11	36	160	33
JUN 06...	1000	11600	80	7.80	11.5	18	10.1	96	K64	140	39	4
AUG 05...	1530	548	314	8.50	25.0	1.8	8.1	101	K13	K5	150	18

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 17...	37	9.8	9.6	13	0.4	2.2	111	33	2.1	0.2	10
FEB 04...	44	12	13	15	0.5	2.4	127	42	2.6	0.2	11
JUN 06...	12	2.2	2.3	11	0.2	0.7	35	8.9	0.6	<0.1	8.6
AUG 05...	40	12	12	15	0.4	2.7	132	38	2.5	0.2	12

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)
OCT 17...	183	170	0.25	682	<0.10	0.01	0.7	0.02	0.02	0.02	10
FEB 04...	207	200	0.28	710	0.20	0.04	0.2	0.02	0.01	0.01	<10
JUN 06...	56	57	0.08	1750	<0.10	0.03	0.2	0.07	<0.01	<0.01	60
AUG 05...	202	200	0.27	299	<0.10	0.03	0.3	0.06	0.02	0.01	<10

K - Results based on colony count outside the acceptable range (non-ideal colony count).

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12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT 17...	3	37	<0.5	<1	<1	<3	2	5	4	7	5
FEB 04...	3	40	<0.5	<1	4	<3	4	<3	3	5	19
JUN 06...	2	18	<0.5	<1	7	<3	4	54	4	<4	<1
AUG 05...	11	53	<0.5	<1	5	<3	2	<3	<1	7	5

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 17...	<0.1	<10	1	<1	<1	290	<6	7	6	22	--
FEB 04...	<0.1	<10	1	<1	<1	370	<6	5	4	14	--
JUN 06...	<0.1	<10	<1	<1	<1	73	<6	26	128	4010	46
AUG 05...	<0.1	<10	<1	<1	<1	350	<6	6	2	3.0	--

12447390 ANDREWS CREEK NEAR MAZAMA, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 48°49'23", long 120°08'41", in NE¼ sec.1, T.38 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, on left bank 50 ft upstream from Blizzard Creek, 3.5 mi upstream from mouth, and 20 mi northeast of Mazama.

DRAINAGE AREA.--22.1 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR WA-76-2: 1975. WDR WA-77-2: 1976.

GAGE.--Water-stage recorder. Elevation of gage is 4,300 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 3-5, Jan. 15-18, Jan. 31 to Feb. 5. Water-discharge records good except for estimated daily discharges, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--17 years, 32.3 ft³/s, 19.85 in/yr, 23,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s June 10, 1972, gage height, 4.00 ft, from rating curve extended above 440 ft³/s; minimum, 1.2 ft³/s Nov. 4, 1968, Nov. 20, 1970, Apr. 7, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 22	2100	*388	*2.76	June 1	2200	225	2.40
May 28	2200	291	2.56	June 7	1300	210	2.36

Minimum discharge, 2.4 ft³/s Mar. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	5.4	4.4	3.5	3.5	2.9	2.9	16	136	24	8.5	3.6
2	6.0	6.0	4.2	3.6	3.5	2.8	3.3	23	148	23	12	3.6
3	6.1	6.3	4.0	3.6	3.5	2.8	3.4	37	136	22	9.4	3.5
4	5.4	5.9	4.0	3.6	3.5	2.8	3.0	33	146	22	8.5	3.5
5	5.1	5.8	4.0	3.5	3.5	2.8	3.0	31	112	21	7.9	3.6
6	4.9	5.7	4.3	3.5	3.5	2.8	3.1	30	93	20	7.6	7.6
7	4.7	5.6	4.3	3.5	3.5	2.8	3.4	31	152	19	7.4	6.2
8	4.6	5.4	4.3	3.5	3.5	2.8	3.9	31	109	18	7.3	6.5
9	6.2	5.4	4.3	3.5	3.4	2.6	5.6	30	90	17	7.2	6.8
10	7.0	5.4	4.3	3.5	3.4	2.6	7.6	30	80	17	7.0	7.0
11	17	5.3	4.2	3.5	3.4	2.6	9.7	28	77	16	6.9	6.5
12	11	5.4	4.1	3.5	3.3	2.6	11	27	74	16	6.7	8.0
13	9.9	5.5	4.1	3.5	3.3	2.6	13	28	70	15	6.4	7.2
14	8.7	5.2	4.2	3.5	3.3	2.6	19	27	68	14	6.1	8.5
15	8.0	5.0	4.3	3.3	3.3	2.6	22	32	65	14	5.7	8.4
16	8.0	5.1	4.3	3.3	3.3	2.6	25	49	57	16	5.6	7.1
17	7.2	5.0	4.3	3.3	3.2	2.6	23	82	54	21	5.4	6.5
18	7.3	5.0	4.3	3.4	3.2	2.7	21	148	51	15	5.3	6.4
19	6.6	5.0	4.3	3.6	3.2	2.7	20	196	48	14	5.0	6.2
20	7.0	4.9	4.2	3.6	3.2	2.8	19	224	46	13	4.8	5.9
21	6.6	4.7	3.8	3.6	3.1	2.8	18	260	42	12	5.0	5.9
22	6.5	4.6	3.8	3.6	3.0	2.7	17	289	38	11	4.8	5.4
23	6.4	4.7	3.7	3.5	3.0	2.7	16	281	36	11	4.6	5.1
24	6.6	4.6	3.7	3.5	3.0	2.7	15	272	34	11	4.5	5.0
25	6.8	4.5	3.6	3.5	2.9	2.6	15	216	32	10	4.3	4.8
26	6.7	4.4	3.6	3.5	2.8	2.7	14	168	31	9.7	4.1	4.7
27	5.8	4.4	3.7	3.5	2.9	2.7	15	145	29	9.3	4.0	4.5
28	6.4	4.5	3.6	3.5	2.9	2.7	15	216	28	8.8	3.9	4.4
29	5.0	4.4	3.6	3.5	---	2.7	14	173	26	8.5	3.8	4.4
30	4.7	4.4	3.6	3.5	---	2.7	14	135	26	8.2	3.7	4.5
31	4.1	---	3.6	3.5	---	2.7	---	124	---	8.0	3.6	---
TOTAL	212.4	153.5	124.7	108.5	91.1	83.8	374.9	3412	2134	464.5	187.0	171.3
MEAN	6.85	5.12	4.02	3.50	3.25	2.70	12.5	110	71.1	15.0	6.03	5.71
MAX	17	6.3	4.4	3.6	3.5	2.9	25	289	152	24	12	8.5
MIN	4.1	4.4	3.6	3.3	2.8	2.6	2.9	16	26	8.0	3.6	3.5
CFSM	.31	.23	.18	.16	.15	.12	.57	4.98	3.22	.68	.27	.26
IN.	.36	.26	.21	.18	.15	.14	.63	5.74	3.59	.78	.31	.29
AC-FT	421	304	247	215	181	166	744	6770	4230	921	371	340

CAL YR 1984	TOTAL	11078.0	MEAN	30.3	MAX	284	MIN	3.6	CFSM	1.37	IN.	18.65	AC-FT 21970
WTR YR 1985	TOTAL	7517.7	MEAN	20.6	MAX	289	MIN	2.6	CFSM	.93	IN.	12.65	AC-FT 14910

0320

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT											
16...	1100	7.8	51	7.70	1.0	1.0	12.0	100	K1	K1	21
FEB											
05...	1100	3.4	61	7.30	0.0	0.2	13.4	109	<1	K2	25
JUN											
04...	1200	140	20	7.50	5.0	1.6	10.2	94	<1	K4	9
AUG											
06...	1130	7.7	57	7.60	8.5	0.7	10.8	100	K3	21	24

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
16...	--	6.6	1.0	2.1	18	0.2	0.7	26	1.5	0.2	<0.1
FEB											
05...	--	8.1	1.2	2.7	7	0.2	--	30	2.0	1.0	<0.1
JUN											
04...	--	2.8	0.41	1.0	19	0.2	0.3	12	2.1	<0.2	<0.1
AUG											
06...	0	7.7	1.1	2.4	17	0.2	0.8	29	3.4	0.3	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
OCT										
16...	9.7	46	37	0.06	0.97	<0.10	<0.01	0.2	<0.01	0.01
FEB										
05...	12	52	86	0.07	0.48	<0.10	0.04	<0.2	0.01	0.01
JUN										
04...	7.1	19	--	--	--	<0.10	0.04	0.2	<0.01	<0.01
AUG										
06...	11	40	44	0.05	0.83	<0.10	0.03	<0.2	<0.01	<0.01

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
OCT 16...	<0.01	--	--	--	--	--	--	--	--	--
FEB 05...	<0.01	<10	<1	28	<0.5	<1	5	<3	1	<3
JUN 04...	<0.01	50	<1	13	<0.5	<1	8	<3	4	18
AUG 06...	0.02	20	<1	33	<0.5	<1	<6	<3	1	3

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)
OCT 16...	--	--	--	--	--	--	--	--	--	--
FEB 05...	7	<4	6	<0.1	<10	<1	<1	16	84	<6
JUN 04...	2	<4	<1	<0.1	<10	<1	<1	<1	28	<6
AUG 06...	<1	<4	<1	<0.1	<10	<1	<1	<1	80	<6

DATE	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM DISSOLVED, EXTRACTION (UG/L)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT 16...	--	--	--	--	--	--	--	--	4	0.08
FEB 05...	<3	<0.7	<0.4	4.1	3.6	<0.4	0.05	0.27	2	0.02
JUN 04...	18	--	--	--	--	--	--	--	2	0.76
AUG 06...	7	--	--	--	--	--	--	--	2	0.04

12449950 METHOW RIVER NEAR PATEROS, WA

LOCATION.--Lat 48°04'39", long 119°59'02", in SE¼SW¼ sec.20, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1.4 mi downstream from Black Canyon Creek, 4.3 mi northwest of Pateros, and at mile 6.7.

DRAINAGE AREA.--1,772 mi².

PERIOD OF RECORD.--April 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft, from topographic map. Prior to Dec. 17, 1964, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 3-7, Dec. 10 to Jan. 22, Jan. 30 to Feb. 22. Records good except for estimated daily discharges, which are fair. Diversions for irrigation of about 11,000 acres upstream from station (1959 Bureau of Reclamation land classification). U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--26 years, 1,607 ft³/s, 1,164,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft³/s May 31, 1972, gage height, 12.25 ft; minimum daily, 150 ft³/s Jan. 8, 9, 10, 1974, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1920, 46,700 ft³/s May 29, 1948, determined by slope-area measurement of peak flow at site 1 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 23	1300	*8,000	*6.76	No other peak greater than base discharge.			

Minimum discharge, 229 ft³/s Sept. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429	426	427	390	300	334	397	1100	4500	1300	394	236
2	442	452	415	390	300	334	421	1160	5020	1210	398	239
3	440	461	320	370	300	330	430	1510	5410	1190	408	238
4	440	472	290	370	290	330	470	1940	5280	1190	396	234
5	439	467	290	370	300	330	470	1910	5140	1160	381	231
6	433	464	310	390	300	330	475	1850	4490	1110	371	229
7	431	461	330	390	310	330	496	1830	4420	1020	357	237
8	426	456	355	390	310	322	512	1800	4890	950	346	260
9	428	451	368	390	320	322	556	1770	4220	917	339	283
10	428	461	360	370	330	322	748	1750	3780	895	338	326
11	453	466	340	370	340	318	1060	1690	3480	872	333	377
12	514	481	330	360	350	313	1250	1620	3470	825	326	401
13	540	493	320	360	360	322	1380	1580	3570	785	318	401
14	547	498	320	360	360	326	1650	1580	3370	743	313	421
15	525	475	310	360	360	326	2030	1540	3320	702	301	430
16	510	453	310	360	360	334	2260	1680	3180	661	294	436
17	506	451	310	360	350	343	2330	2310	2890	692	286	430
18	494	462	300	380	340	356	2180	3770	2710	734	282	426
19	487	456	290	380	340	364	1980	5660	2720	669	271	416
20	478	462	310	380	340	383	1790	6080	2700	619	260	406
21	473	457	350	370	350	385	1640	6390	2510	590	260	407
22	468	443	400	370	350	383	1540	7030	2290	561	260	396
23	465	440	500	370	343	390	1450	7550	2080	533	260	387
24	465	442	490	360	343	384	1350	7250	1890	522	254	383
25	470	433	470	360	343	372	1280	6980	1720	511	253	382
26	491	431	470	352	334	370	1210	6360	1580	489	246	381
27	497	450	460	347	330	388	1170	5840	1490	467	242	374
28	484	448	440	343	330	392	1180	5620	1460	448	242	367
29	473	439	420	334	---	388	1140	5920	1420	432	240	369
30	463	439	410	310	---	383	1110	5150	1370	413	239	369
31	454	---	390	300	---	383	---	4570	---	401	239	---
TOTAL	14593	13690	11405	11306	9283	10887	35955	112790	96370	23611	9447	10472
MEAN	471	456	368	365	332	351	1199	3638	3212	762	305	349
MAX	547	498	500	390	360	392	2330	7550	5410	1300	408	436
MIN	426	426	290	300	290	313	397	1100	1370	401	239	229
AC-FT	28950	27150	22620	22430	18410	21590	71320	223700	191100	46830	18740	20770

CAL YR 1984	TOTAL	614491	MEAN	1679	MAX	11600	MIN	290	AC-FT	1219000
WTR YR 1985	TOTAL	359809	MEAN	986	MAX	7550	MIN	229	AC-FT	713700

12450700 COLUMBIA RIVER BELOW WELLS DAM, WA

LOCATION.--Lat 47°56'48", long 119°51'56", in SW¼SE¼ sec.6, T.28 N., R.24 E., Chelan County, Hydrologic Unit 17020005, at powerhouse of Wells Dam, 0.7 mi northeast of Azwell, and at mile 515.9.

DRAINAGE AREA.--86,100 mi², approximately.

PERIOD OF RECORD.--October 1967 to current year. October 1953 to September 1967 (monthly discharge only) on file in Washington office.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bechtel Corporation). Prior to Oct. 1, 1970, at site 0.8 mi downstream at same datum. Auxiliary water-stage recorder 6.8 mi downstream from base gage at same datum.

REMARKS.--Records good except those above 240,000 ft³/s and those below 45,000 ft³/s, which are fair. Many days in the months of October, December, April, July, August, and September provided by Public Utility District No. 1 of Douglas County through the Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal (see sta 12435500) for Columbia Basin project and for irrigation of about 380,000 acres in the United States and an additional 35,000 acres in Canada.

AVERAGE DISCHARGE.--32 years, 117,800 ft³/s, 85,350,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 402,000 ft³/s June 15, 1972; maximum elevation, 731.92 ft June 16, 1972; minimum discharge, 17,900 ft³/s Oct. 5, 1970 (from powerplant records); minimum elevation, 703.55 ft Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 202,000 ft³/s May 10, elevation, 718.99 ft; minimum daily, 34,200 ft³/s Apr. 6; minimum elevation, 705.01 ft Apr. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83100	86600	62200	89400	156000	118000	65000	112000	82200	119000	56700	50000
2	83900	57300	71400	135000	148000	125000	75600	131000	80300	109000	46500	59900
3	88100	54200	121000	152000	135000	119000	101000	129000	105000	80600	34700	83800
4	80000	41200	122000	141000	168000	130000	73400	124000	110000	65100	36600	63300
5	85300	72400	116000	131000	169000	122000	49000	122000	117000	65000	58000	62500
6	73400	53300	121000	132000	167000	127000	34200	146000	88600	77300	79900	59400
7	51000	69700	106000	124000	154000	123000	39200	148000	77300	79400	82800	39600
8	68500	88500	84400	142000	137000	130000	52200	150000	49200	81100	72600	36300
9	76700	71200	91400	144000	142000	104000	47200	144000	56800	81200	68700	59600
10	75100	48800	100000	149000	133000	107000	56100	147000	82200	71700	58400	47300
11	86700	46800	103000	152000	130000	106000	57700	156000	85700	71000	44800	52800
12	73500	67800	102000	143000	117000	96900	54600	133000	97500	63400	61900	59000
13	67600	86700	104000	109000	132000	118000	54500	146000	99700	49300	86500	50600
14	69000	83800	103000	139000	157000	116000	53300	148000	110000	56300	77800	35300
15	85600	99500	102000	134000	148000	103000	118000	146000	94700	89500	70900	36300
16	92700	83800	76700	143000	142000	74200	115000	112000	78000	108000	78000	68800
17	78400	85200	101000	159000	141000	69500	115000	112000	124000	85900	59800	56100
18	75000	72100	129000	164000	144000	107000	112000	105000	141000	68300	63500	69500
19	66900	110000	140000	162000	149000	97600	118000	94000	122000	64000	60300	41000
20	61300	99300	138000	140000	146000	98900	102000	118000	130000	59900	63300	59200
21	81600	89100	124000	151000	137000	122000	83600	122000	99200	64400	64600	48300
22	88800	57500	90400	161000	122000	122000	118000	119000	80700	86800	60900	57000
23	92300	61300	73900	165000	115000	107000	128000	124000	73300	90800	57300	83600
24	87600	51300	84800	168000	122000	89500	136000	102000	98400	77200	54900	85700
25	92600	50400	59900	162000	134000	115000	114000	90100	111000	73800	55100	90000
26	80100	95400	80200	142000	138000	131000	118000	77600	102000	61800	91000	90600
27	45600	108000	93200	130000	125000	116000	112000	92900	105000	51300	60300	83400
28	56500	89400	99000	150000	117000	99900	118000	125000	116000	45300	60700	78500
29	88600	99800	90200	149000	---	113000	121000	138000	102000	63900	70400	74200
30	78500	77000	68700	169000	---	93600	123000	114000	86900	56700	63100	99200
31	79600	---	86400	141000	---	65400	---	123000	---	52700	43700	---
TOTAL	2393600	2257400	3044800	4472400	3925000	3366500	2664600	3850600	2905700	2269700	1943700	1880800
MEAN	77210	75250	98220	144300	140200	108600	88820	124200	96860	73220	62700	62690
MAX	92700	110000	140000	169000	169000	131000	136000	156000	141000	119000	91000	99200
MIN	45600	41200	59900	89400	115000	65400	34200	77600	49200	45300	34700	35300
AC-FT	4748000	4478000	6039000	8871000	7785000	6677000	5285000	7638000	5763000	4502000	3855000	3731000

CAL YR 1984 TOTAL 38894900 MEAN 106300 MAX 175000 MIN 41200 AC-FT 77148000
WTR YR 1985 TOTAL 34974800 MEAN 95820 MAX 169000 MIN 34200 AC-FT 69373000

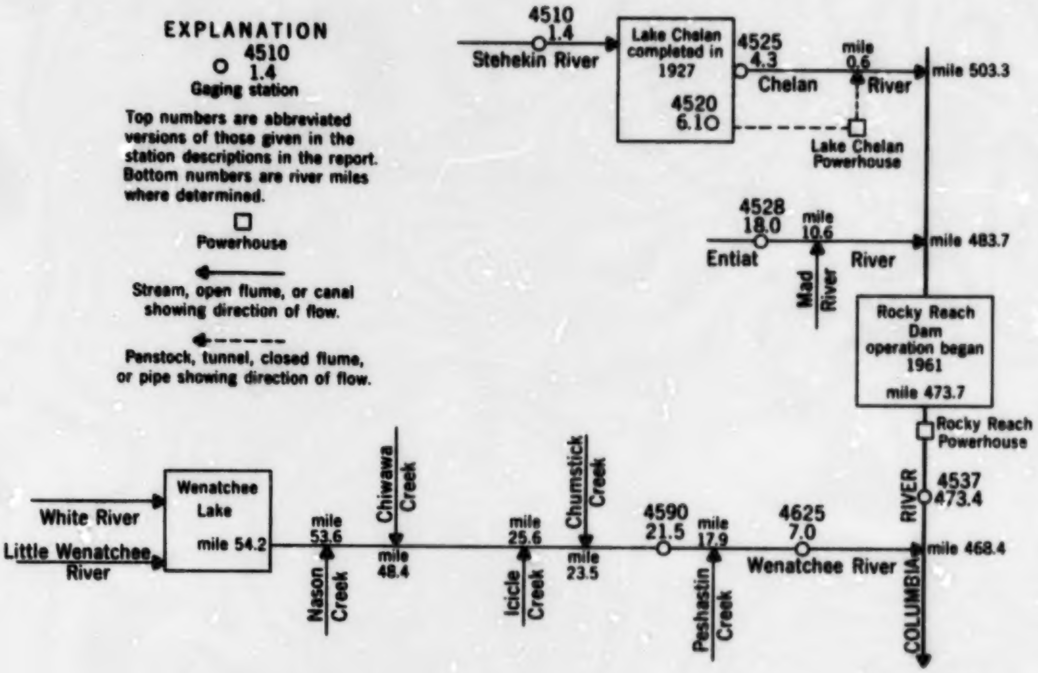
EXPLANATION
4510
1.4
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
4510
1.4
Stehekin River
Lake Chelan completed in 1927
4525
4.3
4520
6.10
Chelan
mile
0.6
River
mile 503.3
Lake Chelan Powerhouse
4528
18.0
mile
10.6
Entiat
River
mile 483.7
Mad River
Rocky Reach Dam operation began 1961
mile 473.7
Rocky Reach Powerhouse
4537
473.4
COLUMBIA RIVER
mile 468.4
White River
Little Wenatchee River
Wenatchee Lake
mile 54.2
mile
53.6
Nason Creek
Chiwawa Creek
mile
48.4
mile
25.6
Icicle Creek
Chumstick Creek
mile
23.5
4590
21.5
mile
17.9
Peshastin Creek
4625
7.0
Wenatchee River

Figure 25.--Gaging stations in Columbia River basin from Chelan to Wenatchee Rivers.

12451000 STEHEKIN RIVER AT STEHEKIN, WA

LOCATION.--Lat 48°19'47", long 120°41'26", in NE¼SE¼ sec.26, T.33 N., R.17 E., Chelan County, Hydrologic Unit 17020009, Lake Chelan National Recreation Area, on left bank 1,100 ft upstream from Boulder Creek, 1.4 mi upstream from Lake Chelan, and 2.1 mi northwest of Stehekin.

DRAINAGE AREA.--321 mi^2.

PERIOD OF RECORD.--October 1910 to October 1915, Octobcr 1926 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1316: 1911(M), 1914-15(M). WSP 1446: 1912(M). WSP 1933: Drainage area. WDR-80-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,098.5 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1911, nonrecording gage 0.4 mi upstream from mouth at Lake Chelan at different datums (datum change made June 13, 1911). Aug. 17, 1911, to Oct. 31, 1915, nonrecording gage 0.2 mi downstream from Boulder Creek at different datum.

REMARKS.--Estimated daily discharges: Nov. 8-10, Nov. 15 to Mar. 17. Records good except for estimated daily discharges, which are poor. No known regulation or diversion. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--64 years, 1,414 ft^3/s, 59.82 in/yr, 1,024,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft^3/s May 29, 1948, gage height, 29.00 ft, from rating curve extended above 11,000 ft^3/s on basis of slope-area measurement of peak flow; minimum, 56 ft^3/s Jan. 21, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 22	2245	*8,030	*24.18	No other peak greater than peak discharge.			

Minimum daily discharge, 160 ft^3/s Jan. 30 to Feb. 5, Mar. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	373	399	250	200	160	190	455	1250	3950	2070	1450	720
2	377	384	220	200	160	180	623	1580	4380	2390	1360	704
3	383	425	200	190	160	180	840	2360	4560	2800	1310	710
4	425	434	200	190	160	180	776	2180	5060	2870	1340	729
5	434	407	200	190	160	190	749	1900	4430	2740	1240	1220
6	374	389	210	200	165	170	763	1760	3380	2250	1180	1730
7	443	392	230	200	165	160	802	1750	5170	2060	1170	899
8	521	360	250	200	165	160	883	1740	4810	2340	1090	769
9	690	350	250	200	165	170	1160	1700	3610	2720	1040	701
10	813	360	240	190	165	170	1590	1680	3150	2760	980	825
11	953	368	230	190	165	170	1870	1570	3160	2390	962	719
12	762	370	220	180	165	190	2070	1440	3990	2170	1010	714
13	727	380	220	180	170	210	2270	1400	3940	1890	969	628
14	622	367	220	180	170	230	2670	1390	3910	1750	971	613
15	553	340	210	180	170	260	2880	1460	4430	1770	1020	599
16	513	340	210	180	170	290	3070	2060	3690	1810	980	556
17	473	330	210	180	170	320	2840	3510	3340	1870	980	662
18	439	330	200	190	170	358	2400	5200	3810	1770	996	552
19	410	330	190	190	170	361	2010	6020	4350	1740	1020	492
20	392	330	210	190	170	373	1700	5790	3990	1760	970	449
21	372	320	230	190	170	383	1500	6190	3310	1730	864	441
22	358	320	260	180	180	383	1340	6910	3030	1750	831	410
23	354	300	290	180	190	389	1270	7160	2620	1830	874	379
24	354	300	270	180	190	371	1150	7030	2140	1690	942	369
25	784	290	260	180	190	364	1070	5980	1880	1510	989	361
26	695	290	250	180	180	361	1030	5180	2050	1380	927	370
27	562	290	250	180	180	350	1200	4900	2370	1340	863	351
28	517	290	230	180	190	336	1340	4520	2460	1370	878	320
29	468	310	220	170	---	331	1260	3960	2400	1440	836	300
30	443	280	210	160	---	336	1230	3400	2290	1490	809	284
31	405	---	200	160	---	363	---	3400	---	1530	755	---
TOTAL	15989	10375	7040	5740	4785	8479	44811	106370	105660	60980	31606	18576
MEAN	516	346	227	185	171	274	1494	3431	3522	1967	1020	619
MAX	953	434	290	200	190	389	3070	7160	5170	2870	1450	1730
MIN	354	280	190	160	160	160	455	1250	1880	1340	755	284
CFSM	1.61	1.08	.71	.58	.53	.85	4.65	10.7	11.0	6.13	3.18	1.93
IN.	1.85	1.20	.82	.67	.55	.98	5.19	12.33	12.24	7.07	3.66	2.15
AC-FT	31710	20580	13960	11390	9490	16820	88880	211000	209600	121000	62690	36850

CAL YR 1984	TOTAL	497408	MEAN	1359	MAX	6540	MIN	190	CFSM	4.23	IN.	57.64	AC-FT	986600
WTR YR 1985	TOTAL	420411	MEAN	1152	MAX	7160	MIN	160	CFSM	3.59	IN.	48.72	AC-FT	833900

12452000 LAKE CHELAN AT CHELAN, WA

LOCATION.--Lat 47°50'11", long 120°03'37", near center of sec.15, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, on south shore of Lake Chelan at Lakeside, 2.1 mi west of Chelan.

DRAINAGE AREA.--924 mi².

PERIOD OF RECORD.--September 1897 to December 1899, January to June 1905 and December 1910 to September 1911 (fragmentary gage heights only), October 1911 to current year. Records of change in contents prior to October 1911, published in WSP 482 and 492 in conjuction with records for Chelan River near Chelan, have been found to be unreliable and should not be used. Monthend contents October 1911 to September 1950 published in WSP 1316.

REVISED RECORDS.--WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is mean sea level, datum of 1912. To convert to National Geodetic Vertical Datum of 1929, subtract 1.73 ft. Prior to Jan. 1, 1900, nonrecording gage at Lakeside about 1 mi west of Chelan at datum 1,070.18 ft above National Geodetic Vertical Datum of 1912. Jan. 1 to June 30, 1905, nonrecording gage at upper highway bridge at Chelan at different datum. Dec. 5, 1910, to Nov. 13, 1927, nonrecording gage at Forest Service boat landing at Chelan at datum 1,076.07 ft above National Geodetic Vertical Datum of 1912.

REMARKS.--Reservoir is formed by low concrete dam at lake outlet completed Sept. 3, 1927. Usable capacity between elevations 1,079 ft and 1,100 ft 677,400 acre-ft. Regulation between these elevations is allowed by stipulation of the Federal Power Commission. Water is used for power development. Elevation of lake maintained between 1,092 ft and 1,100 ft during period Aug. 16 to Sept. 15 for scenic effect and recreational purposes. Diversions for irrigation of about 6,280 acres with an annual depletion of about 11,000 acre-ft, 1946 estimate. Chemical analyses June 1971 to August 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,100.16 ft June 30, 1981 (affected by seiche action); maximum contents, 679,300 acre-ft June 30, 1981, elevation, 1,100.06 ft, mean of seiche; minimum since completion of dam in 1927, 1,079.68 ft Apr. 3, 4, 1937, Apr. 3, 1970, contents, 21,350 acre-ft; minimum elevation, 1,076.78 ft, Jan. 27, 28, Dec. 2-5, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,099.99 ft July 21 (affected by seiche action); maximum contents, 676,700 acre-ft July 21, elevation, 1,099.98 ft, mean of seiche; minimum elevation, 1,083.36 ft Apr. 2, contents, 138,000 acre-ft.

Capacity table (elevation, in feet, and usable contents, in acre-feet)
(Based on data by the Pacific Northwest Coordination Agreement)

1,080	31,540	1,090	350,900	1,100	677,400
1,085	190,200	1,095	513,300		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1098.06	1095.39	1092.85	1089.42	1086.10	1084.21	1083.38	1085.44	1092.57	1099.08	1099.49	1099.29
2	1097.98	1095.37	1092.75	1089.30	1085.98	1084.19	1083.36	1085.49	1092.85	1099.15	1099.50	1099.33
3	1097.91	1095.33	1092.62	1089.19	1085.86	1084.13	1083.37	1085.59	1093.16	1099.27	1099.46	1099.32
4	1097.86	1095.23	1092.52	1089.09	1085.75	1084.08	1083.38	1085.72	1093.55	1099.38	1099.41	1099.24
5	1097.75	1095.13	1092.39	1088.76	1085.63	1084.03	1083.37	1085.83	1093.92	1099.52	1099.40	1099.20
6	1097.65	1095.04	1092.27	1088.85	1085.50	1084.01	1083.38	1085.90	1094.16	1099.60	1099.38	1099.18
7	1097.58	1095.01	1092.20	1088.75	1085.39	1083.99	1083.37	1085.99	1094.49	1099.65	1099.41	1099.10
8	1097.48	1094.98	1092.08	1088.65	1085.30	1083.96	1083.38	1086.09	1094.90	1099.71	1099.43	1099.05
9	1097.36	1094.89	1091.96	1088.52	1085.20	1083.93	1083.40	1086.17	1095.16	1099.79	1099.38	1098.98
10	1097.31	1094.80	1091.85	1088.39	1085.09	1083.89	1083.47	1086.27	1095.37	1099.92	1099.35	1098.94
11	1097.32	1094.74	1091.73	1088.28	1085.00	1083.85	1083.56	1086.36	1095.57	1099.90	1099.35	1098.90
12	1097.24	1094.66	1091.66	1088.18	1084.94	1083.82	1083.66	1086.41	1095.81	1099.92	1099.34	1098.83
13	1097.23	1094.63	1091.50	1088.05	1084.90	1083.78	1083.77	1086.46	1096.08	1099.88	1099.33	1098.77
14	1097.17	1094.51	1091.42	1087.94	1084.85	1083.74	1083.89	1086.54	1096.34	1099.88	1099.35	1098.80
15	1097.05	1094.39	1091.33	1087.83	1084.92	1083.70	1084.05	1086.60	1096.64	1099.94	1099.34	1098.81
16	1096.96	1094.29	1091.19	1087.73	1084.77	1083.67	1084.25	1086.66	1096.88	1099.90	1099.35	1098.84
17	1096.88	1094.18	1091.06	1087.61	1084.72	1083.63	1084.42	1086.77	1097.06	1099.88	1099.35	1098.76
18	1096.77	1094.09	1090.95	1087.50	1084.67	1083.59	1084.59	1087.00	1097.28	1099.87	1099.36	1098.68
19	1096.64	1093.99	1090.83	1087.38	1084.62	1083.58	1084.75	1087.37	1097.56	1099.90	1099.41	1098.57
20	1096.54	1093.91	1090.74	1087.31	1084.58	1083.57	1084.89	1087.75	1097.88	1099.92	1099.39	1098.49
21	1096.45	1093.82	1090.60	1087.24	1084.52	1083.55	1084.95	1088.24	1098.05	1099.94	1099.34	1098.39
22	1096.35	1093.72	1090.53	1087.12	1084.49	1083.54	1085.00	1088.69	1098.24	1099.91	1099.30	1098.34
23	1096.24	1093.60	1090.40	1087.00	1084.44	1083.52	1085.02	1089.24	1098.41	1099.86	1099.27	1098.31
24	1096.13	1093.49	1090.29	1086.94	1084.43	1083.52	1085.15	1089.86	1098.48	1099.83	1099.28	1098.30
25	1096.07	1093.39	1090.16	1086.87	1084.39	1083.50	1085.23	1090.45	1098.52	1099.77	1099.35	1098.28
26	1096.00	1093.27	1090.04	1086.78	1084.33	1083.49	1085.23	1090.87	1098.59	1099.74	1099.35	1098.25
27	1095.91	1093.23	1089.94	1086.68	1084.29	1083.48	1085.26	1091.21	1098.71	1099.68	1099.35	1098.24
28	1095.84	1093.15	1089.83	1086.56	1084.25	1083.47	1085.34	1091.55	1098.83	1099.60	1099.34	1098.24
29	1095.74	1093.06	1089.73	1086.44	---	1083.44	1085.37	1091.86	1098.94	1099.57	1099.30	1098.25
30	1095.65	1092.96	1089.65	1086.33	---	1083.41	1085.40	1092.10	1099.04	1099.53	1099.30	1098.26
31	1095.49	---	1089.54	1086.21	---	1083.40	---	1092.29	---	1099.49	1099.30	---
MEAN	1096.86	1094.27	1091.18	1087.77	1084.96	1083.73	1084.25	1087.83	1096.43	1099.71	1099.36	1098.73
MAX	1098.06	1095.39	1092.85	1089.42	1086.10	1084.21	1085.40	1092.29	1099.04	1099.94	1099.50	1099.33
MIN	1095.49	1092.96	1089.54	1086.21	1084.25	1083.40	1083.36	1085.44	1092.57	1099.08	1099.27	1098.24
(†)	527700	445700	334400	227300	165900	139600	203900	429100	647400	660200	654000	620700
(‡)	-87400	-82000	-111300	-107100	-61400	-26300	+64300	+225200	+218300	+12800	-6200	-33300

CAL YR 1984	MEAN	1093.39	MAX	1099.94	MIN	1087.05	AC-FT‡	-51700
WTR YR 1985	MEAN	1092.14	MAX	1099.94	MIN	1083.36	AC-FT‡	+5600

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

12452500 CHELAN RIVER AT CHELAN, WA

LOCATION.--Lat 47°48'31", long 119°59'08", in SE¼NE¼ sec.30, T.27 N., R.23 E., Chelan County, Hydrologic Unit 17020009, at Chelan River powerplant tailrace, 4.3 mi downstream from control dam at outlet of Lake Chelan, and 3.0 mi southeast of Chelan.

DRAINAGE AREA.--924 mi^2.

PERIOD OF RECORD.--November 1903 to current year. Published as "below Chelan Lake" 1904-05. Adjusted records for October 1903 to September 1911, published in WSP 482, 492, and 870 are unreliable and should not be used.

REVISED RECORDS.--WSP 482: 1904-13. WSP 612: 1924. WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and watt-hour meters on each turbine. Datum of gage is mean sea level, datum of 1912. To convert to National Geodetic Vertical Datum of 1929, subtract 1.62 ft. See WSP 1933 for history of changes prior to Mar. 20, 1939. Water-stage recorder for Lake Chelan at Chelan (see sta 12452000) also used to determine head and spill discharge. Mar. 20, 1939, to Sept. 30, 1981, gage at site 1.7 mi downstream from the Lake Chelan gage, at same datum, and published as the gage of record, used to determine head and spill discharge.

REMARKS.--Daily discharge determined from flow through turbines computed from relation between loading and head, plus flow through two irrigation pipes which divert water from the penstock just above the turbines, plus flow over the spillway computed from relation between discharge, Lake Chelan elevations, and gate openings. Unmeasured water that is diverted for irrigation upstream from station is a small percentage of total runoff. Public Utility District No. 1 of Chelan County diverts water at Chelan to develop about 40,000 KW and to irrigate 900 acres near Chelan. This quantity is included in records of daily discharge. Diversions for irrigation of about 6,280 acres with an annual depletion of about 11,000 acre-ft, 1946 estimate. Flow regulated by Lake Chelan (station 12452000).

COOPERATION.--Records completely furnished by Public Utility District No. 1 of Chelan County except for partial records furnished during period of spill.

AVERAGE DISCHARGE.--81 years (water years 1905-85), 2,051 ft^3/s, 30.14 in/yr, 1,486,000 acre-ft/yr, adjusted for storage since October 1911.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18,400 ft^3/s June 3, 1968; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at other times owing to artificial regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3,530 ft^3/s July 22; minimum daily, 106 ft^3/s Sept. 28 and 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1500	2100	2010	2110	2000	1010	1000	1010	1020	1210	1720	115
2	1500	2100	2010	2110	2000	1010	1000	1010	1020	1310	1720	115
3	1500	2100	2010	2010	2100	1010	1010	1010	1020	1420	1720	1410
4	1700	2100	1710	2010	2000	1010	1010	1010	1020	1420	1720	1820
5	2000	2100	2010	2010	2000	1010	1010	1010	1010	1430	1220	1720
6	2000	1400	2010	2010	2000	1000	1010	1010	1010	1430	921	1720
7	2000	905	2010	2010	2000	900	1010	1010	1010	1430	918	1720
8	2000	1210	2010	2010	2000	1000	1010	1010	1010	1430	918	1720
9	2000	2110	2010	2010	2000	1000	1010	1010	1010	1430	918	1720
10	2000	2110	2010	2010	2000	1000	1010	1010	1010	1770	918	1720
11	1700	2110	2010	2010	1300	1000	1010	1010	1010	3050	918	1720
12	2000	2110	2010	2010	1000	1000	1010	1010	1020	2000	618	1720
13	2000	2110	2010	2010	1010	1000	1010	1010	1020	1910	518	1720
14	2000	2110	2010	2010	1010	900	1010	1010	1020	1140	421	119
15	2000	2010	2110	2010	1010	1000	1010	1010	1020	1700	521	119
16	2000	2110	2110	2010	1010	1000	1010	1010	1020	2710	621	1220
17	2000	2010	2110	2010	1010	1000	1010	1010	1020	1480	721	1720
18	2100	2010	2110	2010	1010	1000	1010	1010	1020	1240	721	1710
19	2100	2010	2100	2010	1010	1000	406	1010	1020	1580	821	2010
20	2100	2010	2100	2010	1010	1000	1010	1010	1020	1820	821	1910
21	2100	2010	2100	2010	1010	1000	1010	1010	1020	1820	719	1910
22	2100	2010	2100	2010	1010	1000	1010	1020	1020	3530	719	809
23	2100	2010	2100	1310	1010	1000	1010	1020	1020	2040	919	509
24	2100	2010	2100	1310	1010	1000	1010	1020	1020	1920	119	309
25	2100	2010	2100	2010	1010	1000	1010	1020	1020	2020	119	806
26	2100	2010	2110	2010	1010	1000	1010	1020	1020	2020	719	606
27	2100	2010	2110	2010	1010	1000	1010	1020	1020	2020	819	206
28	2100	2010	2110	2010	1010	1000	1010	1020	1020	2020	1110	106
29	2100	2010	2110	2110	---	1000	1010	1020	1120	1920	715	106
30	2100	2010	2110	2000	---	1000	1010	1020	1410	1820	715	906
31	2100	---	2110	2000	---	1000	---	1020	---	1720	115	---
TOTAL	61300	58935	63640	61190	38560	30850	29676	31410	31020	55760	26182	34021
MEAN	1977	1965	2053	1974	1377	995	989	1013	1034	1799	845	1134
MAX	2100	2110	2110	2110	2100	1010	1010	1020	1410	3530	1720	2010
MIN	1500	905	1710	1310	1000	900	406	1010	1010	1140	115	106
AC-FT	121600	116900	126200	121400	76480	61190	58860	62300	61530	110600	51930	67480
MEAN†	556	587	242	233	272	568	2070	4676	4702	2007	743	575
CFSM†	0.60	0.64	0.26	0.25	0.29	0.61	2.24	5.06	5.09	2.17	0.80	0.62
IN.†	0.69	0.71	0.30	0.29	0.31	0.71	2.50	5.84	5.68	2.51	0.93	0.69
AC-FT†	34200	34900	14900	14300	15100	34900	123200	287500	279800	123400	45700	34200

CAL YR 1984 TOTAL 759362 MEAN 2075 MAX 8540 MIN 54 AC-FT 1506000 MEAN† 2003 CFSM† 2.17 IN.† 29.52 AC-FT† 1454000
WTR YR 1985 TOTAL 522544 MEAN 1432 MAX 3530 MIN 106 AC-FT 1036000 MEAN† 1439 CFSM† 1.56 IN.† 21.15 AC-FT† 1042000

† Adjusted for change in contents of Lake Chelan.

12452800 ENTIAT RIVER NEAR ARDENVOIR, WA

LOCATION.--Lat 47°49'07", long 120°25'19", in NE¼NE¼ sec.27, T.27 N., R.19 E., Chelan County, Hydrologic Unit 17020010, on left bank 0.5 mi downstream from Stormy Creek, 6.0 mi northwest of Ardenvoir, and at mile 18.0.

DRAINAGE AREA.--203 mi^2.

PERIOD OF RECORD.--September 1957 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,560.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 1-6, Jan. 29 to Feb. 10, Feb. 17, 18, 20, 21, Mar. 3, 8. Records good except estimated daily discharges, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--28 years, 384 ft^3/s, 25.69 in/yr, 278,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,430 ft^3/s June 10, 1972, gage height, 8.98 ft; minimum daily, 25 ft^3/s Dec. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 22	2300	*1,990	*5.39	No other peak greater than base discharge.			

Minimum daily discharge, 54 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	84	76	60	56	68	107	270	1040	381	192	83
2	97	85	69	60	56	65	124	310	1200	371	187	81
3	95	108	63	58	56	60	137	407	1350	404	166	78
4	94	126	63	58	54	67	131	432	1370	416	160	78
5	94	121	65	56	56	64	137	426	1320	420	156	78
6	93	116	70	64	56	66	146	421	1160	371	145	118
7	93	112	82	72	56	62	154	424	1440	335	138	110
8	93	106	88	72	56	60	164	413	1490	333	135	98
9	106	102	86	69	58	64	207	407	1260	343	128	103
10	113	104	83	69	58	63	273	408	1100	362	122	120
11	161	103	82	67	61	62	317	393	1010	338	117	116
12	142	109	82	67	62	64	333	378	1060	305	116	102
13	150	112	81	66	64	65	353	381	1090	284	115	94
14	134	109	83	65	63	67	395	376	1020	260	111	93
15	120	98	82	65	63	69	447	395	992	247	110	94
16	115	98	81	65	62	72	478	486	917	241	110	87
17	110	94	79	66	60	76	483	696	847	240	108	93
18	107	96	78	68	60	83	455	1020	835	234	105	90
19	105	94	69	69	60	89	417	1370	860	224	104	84
20	104	96	75	69	60	96	382	1490	845	222	104	81
21	100	92	80	67	60	97	356	1630	750	217	104	79
22	99	82	85	67	66	97	328	1810	671	210	98	77
23	100	94	87	67	65	99	316	1910	606	213	93	76
24	100	91	79	66	68	96	295	1870	531	212	93	75
25	117	88	77	65	66	93	278	1730	471	196	94	73
26	139	85	77	63	64	92	267	1540	438	183	95	72
27	113	83	76	63	64	95	269	1410	438	173	92	71
28	113	84	73	66	66	91	279	1290	446	166	89	70
29	107	91	72	38	---	89	263	1190	430	165	87	69
30	104	85	68	58	---	91	261	1090	414	165	85	69
31	95	---	63	58	---	99	---	1010	---	182	85	---
TOTAL	3411	2948	2374	2003	1696	2421	8552	27383	27401	8413	3644	2612
MEAN	110	98.3	76.6	64.6	60.6	78.1	285	883	913	271	118	87.1
MAX	161	126	88	72	68	99	483	1910	1490	420	192	120
MIN	93	82	63	56	54	60	107	270	414	165	85	69
CFSM	.54	.48	.38	.32	.30	.38	1.40	4.35	4.50	1.33	.58	.43
IN.	.63	.54	.44	.37	.31	.44	1.57	5.02	5.02	1.54	.67	.48
AC-FT	6770	5850	4710	3970	3360	4800	16960	54310	54350	16690	7230	5180

CAL YR 1984	TOTAL	145127	MEAN	397	MAX	2390	MIN	63	CFSM	1.96	IN.	26.59	AC-FT	287900
WTR YR 1985	TOTAL	92858	MEAN	254	MAX	1910	MIN	54	CFSM	1.25	IN.	17.02	AC-FT	184200

12453700 COLUMBIA RIVER AT ROCKY REACH DAM, WA

LOCATION.--Lat 47°31'28", long 120°18'04", in SW¼NW¼ sec.2, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020010, on right bank 0.5 mi downstream from Rocky Reach Dam, 1.5 mi downstream from Swakane Creek, 7.4 mi north of Wenatchee, and at mile 473.4.

DRAINAGE AREA.--87,800 mi^2, approximately.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder 1.9 mi downstream from base gage at same datum.

REMARKS.--Records good. Many days in the months of October, November, April, July, August, and September provided by Public Utility District No. 1 of Chelan County through the Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal (see sta 12435500) for Columbia Basin project and for irrigation of about 380,000 acres in the United States and an additional 35,000 acres in Canada.

AVERAGE DISCHARGE.--25 years, 117,300 ft^3/s, 84,980,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 535,000 ft^3/s June 10, 1961, elevation, about 635.50 ft; minimum daily, 25,100 ft^3/s Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 203,000 ft^3/s Jan. 19, elevation, 621.81 ft; minimum daily discharge, 35,200 ft^3/s Apr. 6; minimum elevation, 611.93 ft Apr. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85800	87500	61700	92900	157000	120000	70800	114000	91200	118000	55500	51100
2	89200	58700	73600	137000	154000	126000	80600	136000	85300	114000	43300	59700
3	92300	55700	115000	155000	140000	120000	101000	131000	112000	82100	36300	81000
4	81300	42100	120000	149000	165000	133000	78300	126000	112000	64300	39200	65300
5	90800	75700	118000	137000	179000	120000	47900	124000	121000	65800	59900	62000
6	80900	59800	120000	137000	177000	129000	35200	152000	93100	78700	80900	60300
7	53400	69300	108000	128000	156000	124000	41300	144000	84800	81100	82300	43300
8	71600	91700	84800	146000	144000	132000	50600	157000	52100	82300	74000	37900
9	76300	73500	92600	150000	146000	105000	47300	151000	66800	80400	69100	57900
10	80600	53500	103000	153000	137000	112000	61800	147000	88400	73400	57000	44500
11	86900	52200	106000	156000	132000	119000	59100	158000	87200	70100	41300	55700
12	75500	71100	104000	147000	122000	97200	54400	135000	99800	62800	64400	63500
13	67400	86100	108000	112000	132000	123000	58500	152000	105000	53100	85800	53400
14	69700	89200	106000	142000	156000	119000	52200	154000	113000	56500	81500	37200
15	84600	104000	104000	138000	153000	106000	117000	148000	98000	90500	72900	37700
16	89000	84000	78300	147000	145000	76100	124000	111000	80700	104000	78200	69200
17	78900	89400	103000	161000	142000	71200	111000	120000	125000	89400	61000	55900
18	77800	70600	134000	164000	147000	110000	114000	110000	144000	69300	63900	68900
19	66000	113000	151000	163000	154000	102000	125000	98100	129000	69400	60200	44400
20	62600	98800	139000	145000	147000	102000	110000	127000	132000	62800	66600	61200
21	83300	90100	128000	149000	141000	125000	84700	129000	102000	62500	65900	51700
22	93000	58600	94600	163000	125000	123000	117000	126000	81900	88400	57900	59700
23	98500	61500	73900	165000	116000	113000	129000	133000	71400	94500	60000	84100
24	91100	51500	87800	168000	122000	92200	135000	116000	101000	80100	54300	85000
25	97700	50900	64100	159000	135000	125000	119000	97700	113000	77100	56900	90300
26	83200	91600	84800	147000	143000	135000	119000	83200	105000	65500	86300	90900
27	48300	108000	98200	132000	128000	125000	115000	104000	108000	52600	63100	83200
28	60300	91900	104000	150000	116000	102000	121000	136000	120000	48100	62100	77600
29	92400	99500	93900	148000	---	118000	125000	138000	105000	68200	70700	72900
30	82600	75000	71800	170000	---	103000	127000	123000	89700	54700	65600	101000
31	81300	---	89700	152000	---	66300	---	130000	---	51400	44300	---
TOTAL	2472300	2304500	3120800	4562900	4011000	3474000	2731700	4011000	3017400	2311100	1960400	1906500
MEAN	79750	76820	100700	147200	143300	112100	91060	129400	100600	74550	63240	63550
MAX	98500	113000	151000	170000	179000	135000	135000	158000	144000	118000	86300	101000
MIN	48300	42100	61700	92900	116000	66300	35200	83200	52100	48100	36300	37200
AC-FT	4904000	4571000	6190000	9051000	7956000	6891000	5418000	7956000	5985000	4584000	3888000	3782000

CAL YR 1984 TOTAL 40215400 MEAN 109900 MAX 193000 MIN 42100 AC-FT 79767000
WTR YR 1985 TOTAL 35883600 MEAN 98310 MAX 179000 MIN 35200 AC-FT 71175000

12459000 WENATCHEE RIVER AT PESHASTIN, WA

LOCATION.--Lat 47°35'00", long 120°36'46", in SE¼SW¼ sec.8, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi northwest of Peshastin, 3.5 mi upstream from Peshastin Creek, 4.1 mi downstream from Icicle Creek, and at mile 21.5.

DRAINAGE AREA.--1,000 mi², approximately.

PERIOD OF RECORD.--October 1928 to February 1929 (monthly discharge only), March 1929 to current year.

REVISED RECORDS.--WSP 1316: 1929-32(M).

GAGE.--Water-stage recorder. Datum of gage is 1,028.04 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 24, 1932, nonrecording gage at site 1.2 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 4 to Jan. 15, Jan. 31 to Feb. 20. Records excellent except for estimated daily discharges, which are fair. Numerous diversions upstream for irrigation of an estimated 3,200 acres upstream from station. Diversion from Icicle Creek 5.7 mi upstream from mouth is used for irrigation of a substantial part of the 22,000 acres irrigated downstream from station. Bonneville Power Administration telemeter at station.

AVERAGE DISCHARGE.--57 years, 3,098 ft³/s, 2,245,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft³/s May 28, 1948, gage height, 15.88 ft; minimum, 183 ft³/s Oct. 14, 1939; minimum gage height, 1.24 ft Nov. 1, 1952; minimum daily discharge, 270 ft³/s Oct. 2, 1929, Nov. 30, 1936, Dec. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 ft³/s May 24, gage height, 9.67 ft; minimum, 486 ft³/s Sept. 3, gage height, 1.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	665	1130	906	600	520	746	1430	3640	7510	3760	1320	526
2	650	1060	826	580	520	733	1860	4220	8340	3640	1310	515
3	643	1190	731	560	520	707	2360	5620	8640	3930	1200	503
4	647	1380	640	540	500	707	2500	5770	8880	4060	1130	513
5	668	1410	620	540	500	704	2430	5260	8940	4060	1060	528
6	683	1330	640	560	520	716	2460	4810	7980	3660	986	711
7	670	1290	680	600	540	690	2500	4580	10300	3260	930	1090
8	674	1270	760	640	560	672	2570	4400	12400	3160	873	948
9	737	1210	780	660	600	670	3130	4210	10200	3210	830	940
10	835	1200	800	680	640	668	4070	4090	8490	3350	787	1020
11	1050	1200	800	680	660	666	4830	3940	7640	3150	743	972
12	1220	1250	800	680	640	676	5540	3680	8020	2890	715	852
13	1460	1310	800	680	620	689	6000	3530	8590	2640	705	792
14	1460	1340	780	700	600	705	6390	3490	8130	2370	700	741
15	1290	1260	780	700	600	738	6940	3510	8490	2200	693	761
16	1160	1200	760	725	600	771	7180	4210	7980	2100	698	735
17	1070	1140	720	720	600	815	7150	6330	7190	2060	715	723
18	990	1120	680	719	600	903	6420	8740	7130	1990	709	834
19	922	1090	660	707	600	1020	5590	10900	7730	1880	708	767
20	874	1100	680	693	600	1140	4820	11400	8070	1800	692	709
21	836	1070	740	686	602	1200	4210	11400	7290	1740	669	669
22	805	1020	780	678	629	1210	3760	12100	6620	1680	636	629
23	785	993	800	672	655	1240	3520	13100	5970	1650	610	594
24	784	983	760	666	688	1220	3270	13700	5030	1630	602	569
25	1120	948	740	660	735	1160	3000	13100	4310	1540	605	549
26	2070	916	700	653	708	1120	2790	11700	4090	1410	606	530
27	1750	935	680	645	682	1120	2900	10700	4230	1290	602	559
28	1550	945	640	643	692	1070	3870	9810	4370	1210	594	540
29	1410	973	620	631	---	1030	3800	8720	4180	1150	569	526
30	1300	953	600	575	---	1030	3640	7760	4090	1130	557	515
31	1230	---	600	540	---	1210	---	7200	---	1200	542	---
TOTAL	32008	34216	22503	20013	16931	27746	120930	225620	220830	74800	24096	20860
MEAN	1033	1141	726	646	605	895	4031	7278	7361	2413	777	695
MAX	2070	1410	906	725	735	1240	7180	13700	12400	4060	1320	1090
MIN	643	916	600	540	500	666	1430	3490	4090	1130	542	503
AC-FT	63490	67870	44630	39700	33580	55030	239900	447500	438000	148400	47790	41380

CAL YR 1984 TOTAL 1097923 MEAN 3000 MAX 13900 MIN 600 AC-FT 2178000
WTR YR 1985 TOTAL 840553 MEAN 2303 MAX 13700 MIN 500 AC-FT 1667000

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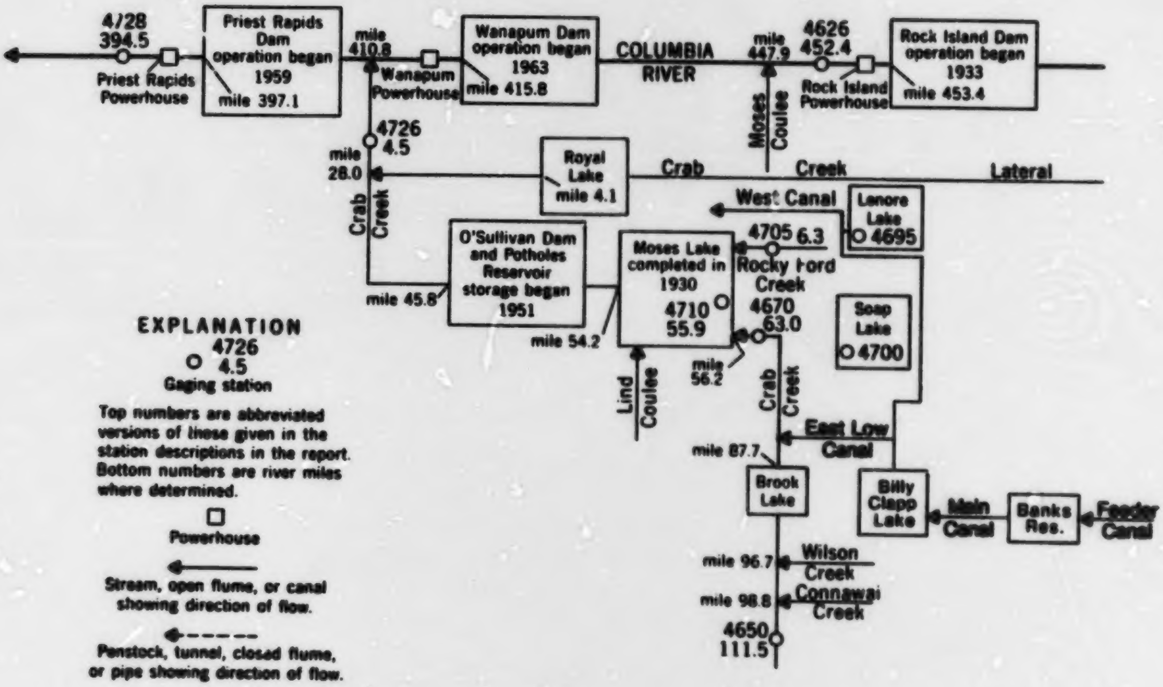
4728
394.5
Priest Rapids Powerhouse
Priest Rapids Dam operation began 1959
mile 397.1
mile 410.8
Wanapum Powerhouse
Wanapum Dam operation began 1963
mile 415.8
COLUMBIA RIVER
mile 447.9
4626
452.4
Rock Island Powerhouse
Rock Island Dam operation began 1933
mile 453.4
Moses Coulee
4726
4.5
mile 28.0
Royal Lake
mile 4.1
Crab Creek Lateral
Crab Creek
West Canal
Lenore Lake
4695
O'Sullivan Dam and Potholes Reservoir storage began 1951
mile 45.8
Moses Lake completed in 1930
4710
55.9
mile 54.2
4705 6.3
Rocky Ford Creek
4670
63.0
mile 56.2
Soap Lake
4700
Lind Coulee
Crab Creek
East Low Canal
mile 87.7
Brook Lake
Billy Clapp Lake
Main Canal
Banks Res.
Feeder Canal
mile 96.7
Wilson Creek
mile 98.8
Connawai Creek
4650
111.5
EXPLANATION
4726
4.5
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 26.--Gaging stations in Columbia River basin from Rock Island Dam to Priest Rapids gage.

12462500 WENATCHEE RIVER AT MONITOR, WA

LOCATION.--Lat 47°29'38", long 120°25'24", in NE¼SW¼ sec.11, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi north of Monitor, 3.5 mi downstream from Mission Creek, and at mile 7.0.

DRAINAGE AREA.--1,301 mi².

PERIOD OF RECORD.--August to November 1897, October 1962 to current year. Published as "near Wenatchee" 1897.

GAGE.--Water-stage recorder. Elevation of gage is 680 ft, from topographic map. Aug. 7 to Nov. 7, 1897, nonrecording gage 1 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 5 to Jan. 14, Jan. 31 to Feb. 18. Records excellent except for estimated daily discharges, which are fair. No regulation. Diversions for irrigation of about 25,000 acres upstream from station. Chelan County Public Utility District No. 1 gage-height telemeter at station.

AVERAGE DISCHARGE.--23 years, 3,337 ft³/s, 2,418,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,600 ft³/s Dec. 27, 1980, gage height, 27.23 ft; minimum, 357 ft³/s Oct. 12, 1979, gage height, 17.01 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,600 ft³/s May 24, gage height, 23.70 ft; minimum, 390 ft³/s Sept. 4, gage height, 17.07 ft..

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	714	1240	1020	680	600	922	1590	3880	7880	3770	1190	432
2	699	1180	959	660	600	923	2110	4450	8870	3600	1240	423
3	690	1260	831	640	600	888	2680	5960	9260	3860	1120	409
4	689	1470	745	620	580	882	2870	6220	9440	4010	1030	408
5	707	1510	700	600	580	872	2790	5650	9590	4030	973	429
6	727	1440	720	620	600	886	2830	5140	8590	3650	901	526
7	713	1390	760	680	640	855	2870	4860	11000	3230	840	993
8	711	1370	860	740	680	828	2930	4640	13300	3080	787	915
9	756	1310	880	740	720	818	3510	4440	11200	3110	751	905
10	860	1300	900	760	760	816	4580	4300	9220	3250	713	1020
11	1010	1290	900	760	780	815	5430	4140	8170	3080	669	1010
12	1280	1360	900	760	760	825	6140	3850	8490	2820	627	902
13	1510	1430	900	780	740	840	6670	3680	9160	2570	607	842
14	1580	1470	900	780	720	860	7130	3630	8640	2310	592	787
15	1410	1400	880	813	700	901	7770	3630	9000	2110	584	794
16	1280	1320	860	810	700	942	7980	4320	8490	2000	588	777
17	1180	1260	820	778	700	995	7990	6630	7550	1960	607	741
18	1110	1240	800	779	700	1090	7120	9360	7360	1900	603	850
19	1050	1200	780	795	698	1220	6130	11800	8010	1790	599	808
20	998	1210	800	806	690	1350	5270	12300	8460	1700	591	751
21	961	1180	860	813	703	1400	4590	12400	7620	1630	578	707
22	926	1130	900	802	734	1410	4090	12900	6830	1560	547	665
23	903	1110	920	790	775	1440	3790	13800	6120	1520	516	624
24	898	1100	900	780	816	1410	3530	14400	5160	1500	507	596
25	1100	1070	860	775	883	1340	3240	13900	4390	1420	518	573
26	2170	1040	820	767	869	1290	3020	12600	4110	1300	515	552
27	1900	1060	800	761	839	1290	3070	11500	4200	1180	504	556
28	1680	1050	760	756	848	1230	4090	10500	4350	1090	494	538
29	1530	1090	720	738	---	1190	4100	9380	4170	1030	470	523
30	1410	1070	700	639	---	1180	3890	8300	4100	1000	455	510
31	1350	---	680	620	---	1340	---	7600	---	1040	444	---
TOTAL	34502	37550	25835	22842	20015	33048	133800	240160	232730	72100	21160	20566
MEAN	1113	1252	833	737	715	1066	4460	7747	7758	2326	683	686
MAX	2170	1510	1020	813	883	1440	7990	14400	13300	4030	1240	1020
MIN	689	1040	680	600	580	815	1590	3630	4100	1000	444	408
AC-FT	68430	74480	51240	45310	39700	65550	265400	476400	461600	143000	41970	40790

CAL YR 1984 TOTAL 1187466 MEAN 3244 MAX 14200 MIN 650 AC-FT 2355000
WTR YR 1985 TOTAL 894308 MEAN 2450 MAX 14400 MIN 408 AC-FT 1774000

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA

LOCATION.--Lat 47°19'57", long 120°04'48", in NE¼NW¼ sec.9, T.21 N., R.22 E., Douglas County, Hydrologic Unit 17020010, on left bank 1.0 mi downstream from Rock Island Dam, 2.0 mi downstream from Rock Island Creek, 12 mi southeast of Wenatchee, and at mile 452.4.

DRAINAGE AREA.--89,400 mi^2, approximately.

PERIOD OF RECORD.--January to December 1910 (gage heights only), May 1913 to December 1916, October 1930 to current year. Published as "at Wenatchee" January 1910 to December 1916, and as "at Trinidad" October 1930 to May 1961.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1. 1916, nonrecording gage 1.2 mi upstream from highway bridge at Wenatchee, at mile 466.3, at datum 583 ft above National Geodetic Vertical Datum of 1929. Jan. 1 to Dec. 31, 1916, nonrecording gage on pier of highway bridge at Wenatchee, at mile 465.1, at datum 579.30 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to May 31, 1961, water-stage recorder 0.5 mi southwest of Trinidad, at mile 441.7, at datum 499.3 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). Since May 21, 1963, auxiliary water-stage recorder 2.0 mi downstream at same datum.

REMARKS.--Discharge for the entire year provided by Public Utility District No. 1 of Chelan County through Corps of Engineers N.P.D. Reservoir Control Center. Flow regulated by nine major reservoirs and numerous small reservoirs and powerplants. Diversion by Feeder Canal (see sta 12435500) for Columbia Basin project and for irrigation of about 380,000 acres in the United States and an additional 35,000 acres in Canada.

AVERAGE DISCHARGE.--58 years (water years 1914-16, 1931-85), 121,000 ft^3/s, 87,660,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft^3/s June 12, 1948, gage height, 59.35 ft, site and datum then in use; minimum, 4,120 ft^3/s Feb. 10, 1932, gage height, 11.40 ft, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft^3/s, from floodmarks at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 172,000 ft^3/s Feb. 5, 6; maximum elevation, 576.22 ft Jan. 19; minimum daily discharge, 35,700 ft^3/s Aug. 3; minimum elevation, 564.17 ft Apr. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82200	87100	65200	91100	151000	119000	69700	116000	95100	120000	59600	49500
2	85700	59200	71800	133000	149000	125000	79800	139000	89400	116000	50200	58800
3	87400	54800	115000	152000	136000	120000	99300	132000	112000	88800	35700	80400
4	82400	44100	119000	147000	157000	133000	80200	126000	114000	72200	39000	67200
5	86100	73400	116000	133000	172000	119000	55200	129000	125000	72500	62900	65900
6	78100	59300	120000	135000	172000	128000	36600	154000	101000	82700	78400	62000
7	52700	69600	105000	124000	152000	123000	42600	147000	91900	84600	82900	43100
8	71600	89700	86600	141000	140000	132000	54500	154000	66800	85000	75900	37200
9	74700	71700	90600	146000	141000	104000	54700	153000	72400	84800	72500	63700
10	78700	53900	101000	149000	135000	109000	64600	147000	94400	79700	61500	51100
11	86400	52400	103000	153000	129000	114000	64000	157000	90000	74900	49100	55200
12	75900	71000	102000	146000	119000	96000	62900	138000	103000	70600	67600	63800
13	68700	82900	105000	107000	129000	122000	63900	152000	109000	54500	85600	53500
14	70600	86000	103000	136000	151000	118000	61300	152000	116000	56300	80700	36800
15	87200	100000	106000	133000	149000	104000	119000	149000	103000	92800	72100	36600
16	91800	85200	78800	144000	142000	79000	126000	116000	86700	108000	75200	69700
17	81000	88500	104000	156000	139000	71600	117000	119000	128000	89800	60100	61500
18	79400	74100	131000	159000	144000	107000	122000	114000	145000	75100	62900	72100
19	70600	109000	148000	158000	149000	98500	126000	104000	133000	69300	62400	43500
20	61000	99800	136000	143000	145000	97800	111000	131000	135000	64300	66600	65900
21	81300	87600	123000	143000	138000	120000	121000	131000	108000	67300	69900	50700
22	90400	60200	92800	158000	124000	121000	121000	133000	88400	88600	60300	58300
23	97200	65100	75400	162000	116000	108000	132000	138000	79200	94500	62600	85900
24	87000	52800	87500	164000	120000	87300	136000	125000	102000	80600	53000	86900
25	94300	50600	64800	156000	134000	120000	118000	103000	112000	78700	55500	92100
26	83600	88800	82100	146000	143000	130000	117000	90300	107000	68000	87600	92100
27	52000	108000	96100	129000	127000	123000	113000	108000	110000	56900	65600	86000
28	58300	92500	102000	146000	117000	98400	122000	141000	121000	48200	63300	79900
29	90100	101000	94700	141000	---	114000	124000	141000	106000	67700	71800	75400
30	80400	79100	73200	165000	---	98400	129000	127000	93500	58700	64100	100000
31	81200	---	88800	148000	---	67000	---	131000	---	58100	43300	---
TOTAL	2448000	2297400	3087400	4444100	3920000	3407000	2843300	4097300	3137800	2409200	1997900	1944800
MEAN	78970	76580	99590	143400	140000	109900	94780	132200	104600	77720	64450	64830
MAX	97200	109000	148000	165000	172000	133000	136000	157000	145000	120000	87600	100000
MIN	52000	44100	64800	91100	116000	67000	36600	90300	66800	48200	35700	36600
AC-FT	4856000	4557000	6124000	8815000	7775000	6758000	5640000	8127000	6224000	4779000	3963000	3858000

CAL YR 1984 TOTAL 40125700 MEAN 109600 MAX 195000 MIN 44100 AC-FT 79589000
WTR YR 1985 TOTAL 36034200 MEAN 98720 MAX 172000 MIN 35700 AC-FT 71474000

12465000 CRAB CREEK AT IRBY, WA

LOCATION.--Lat 47°21'38", long 118°50'56", in NW¼NW¼ sec.31, T.22 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, on right bank 8 ft upstream from highway bridge at Irby, 5.4 mi downstream from Lake Creek, 7.5 mi west of Odessa, and at mile 11.5.

DRAINAGE AREA.--1,042 mi².

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1446: 1949-51. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,386.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 18 to Jan. 22, Jan. 24 to Feb. 20. Records good except for estimated daily discharges, which are fair. Pumpage from ground-water wells for irrigation has been on the increase upstream from station since 1964. No regulation.

AVERAGE DISCHARGE.--43 years, 72.0 ft³/s, 52,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,370 ft³/s Feb. 27, 1957, gage height, 11.94 ft; no flow several days during 1969, 1977, 1978, 1979, and 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 20	0600	*241	*3.23				

Minimum discharge, 6.2 ft³/s Sept. 27-29, gage height, 1.90 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	8.0	7.4	14	11	43	134	77	19	20	13	8.2
2	10	10	7.5	15	10	44	136	70	19	20	13	8.6
3	10	8.1	7.7	16	9.6	46	137	63	19	20	13	8.6
4	10	7.8	7.8	16	9.0	47	139	63	18	19	13	8.2
5	10	7.6	7.9	16	9.6	47	138	61	19	19	13	8.0
6	9.9	7.9	8.0	17	10	47	137	58	20	19	13	8.1
7	9.4	7.5	8.2	17	12	47	134	55	21	19	12	7.9
8	9.4	7.5	8.7	17	13	49	130	53	21	18	12	7.7
9	9.4	7.8	8.7	17	13	54	126	50	20	18	11	7.8
10	9.4	7.9	9.4	17	14	58	124	47	20	18	11	7.8
11	9.6	7.7	9.4	16	15	62	118	44	20	18	11	7.7
12	9.4	8.1	9.7	16	16	68	117	44	20	17	10	7.6
13	9.4	8.0	9.9	16	17	76	114	48	21	18	10	8.0
14	9.4	7.9	10	17	17	82	111	49	22	18	10	7.9
15	9.2	7.6	10	17	17	90	110	47	21	17	10	7.6
16	9.4	7.0	11	18	17	96	106	44	20	17	9.8	8.0
17	9.3	6.8	11	18	17	112	103	42	21	16	9.4	8.2
18	8.7	7.5	10	18	18	121	100	40	21	16	9.0	8.2
19	8.7	6.9	9.5	18	18	126	97	38	21	16	9.4	8.3
20	8.7	7.5	9.0	18	18	166	95	36	21	15	9.4	7.4
21	8.7	7.1	8.0	19	19	162	95	35	21	15	9.3	7.4
22	8.1	6.8	9.0	20	21	136	94	34	21	15	8.8	7.4
23	8.0	7.2	9.4	18	25	136	89	33	21	14	8.7	7.4
24	8.0	7.3	9.8	19	54	145	85	32	21	14	8.1	6.8
25	7.9	6.8	10	19	43	139	87	25	21	14	8.0	6.8
26	8.0	6.8	11	19	37	143	85	24	20	14	8.2	6.8
27	8.0	7.4	12	18	39	142	82	23	21	13	8.3	6.7
28	7.9	7.4	13	16	41	140	81	21	21	13	8.7	6.7
29	8.0	7.6	14	14	---	137	81	21	20	13	8.4	6.6
30	7.8	8.1	14	13	---	135	81	21	20	13	7.6	6.8
31	8.0	---	14	12	---	134	---	20	---	13	7.4	---
TOTAL	277.7	227.6	305.0	521	560.2	3032	3266	1318	611	509	313.5	229.2
MEAN	8.96	7.59	9.84	16.8	20.0	97.8	109	42.5	20.4	16.4	10.1	7.64
MAX	10	10	14	20	54	166	139	77	22	20	13	8.6
MIN	7.8	6.8	7.4	12	9.0	43	81	20	18	13	7.4	6.6
AC-FT	551	451	605	1030	1110	6010	6480	2610	1210	1010	622	455

CAL YR 1984 TOTAL 43649.3 MEAN 119 MAX 2000 MIN 6.8 AC-FT 86580
WTR YR 1985 TOTAL 11170.2 MEAN 30.6 MAX 166 MIN 6.6 AC-FT 22160

12467000 CRAB CREEK NEAR MOSES LAKE, WA

LOCATION.--Lat 47°11'22", long 119°15'53", in NW¼NE¼ sec.35, T.20 N., R.28 E., Grant County, Hydrologic Unit 17020015, on left bank at downstream side of highway bridge, 3.0 mi upstream from Parker Horn, 4.0 mi north of town of Moses Lake, and at mile 63.0.

DRAINAGE AREA.--2,228 mi², of which 219 mi² in the vicinity of Long Lake Reservoir is noncontributing.

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,070.39 ft above U.S. Bureau of Reclamation datum. Prior to July 14, 1956, at site 300 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 29 to Jan. 13, Jan. 30 to Feb. 12. Records excellent except for estimated daily discharges, which are fair. Numerous small diversions for irrigation and domestic use upstream from station. Most of natural flow from upper basin passes this station underground. No known regulation. Since 1952, return flow from irrigation on Columbia Basin project has increased runoff during summer months.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft³/s Feb. 28, 1957, gage height, 6.81 ft; no flow for several months each year prior to 1952 and part of each day Jan. 14, 15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 111 ft³/s Sept. 12, gage height, 3.02 ft; minimum daily, 10 ft³/s Feb. 3-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	58	41	17	12	20	13	40	45	56	82	93
2	86	64	38	16	11	19	12	38	45	57	81	95
3	86	61	40	16	10	18	12	36	45	59	80	94
4	86	58	34	16	10	18	12	35	46	60	82	95
5	86	55	32	16	10	18	11	33	46	60	83	93
6	84	54	31	17	11	18	11	34	49	60	83	92
7	83	53	31	17	12	18	13	34	50	62	84	89
8	83	52	31	17	13	17	22	34	48	69	84	94
9	82	52	30	18	13	17	32	36	47	69	84	101
10	82	52	30	18	14	18	40	37	47	65	82	99
11	86	52	30	18	14	17	45	37	46	65	83	99
12	82	54	30	17	14	17	46	37	45	67	83	108
13	80	53	30	17	14	17	50	38	46	67	83	99
14	78	51	30	18	14	17	61	41	48	68	86	96
15	76	48	30	17	14	17	59	40	47	69	86	94
16	76	47	29	17	15	16	54	37	47	71	87	94
17	76	45	30	17	14	16	51	37	47	71	87	99
18	75	48	36	17	14	16	49	40	47	72	87	101
19	74	46	26	17	14	15	48	40	47	73	87	94
20	74	50	26	18	14	15	47	41	46	74	88	91
21	73	49	26	18	14	14	45	42	46	75	90	90
22	73	45	26	17	14	14	44	42	47	77	91	88
23	73	46	26	17	15	14	44	43	47	76	92	87
24	73	47	26	17	25	14	42	43	49	78	92	84
25	71	45	26	17	25	13	42	43	50	79	92	82
26	69	42	25	16	23	12	42	43	51	79	90	81
27	67	46	24	17	21	15	43	44	49	80	92	78
28	66	47	24	16	21	13	43	43	52	79	92	76
29	64	44	23	16	---	13	42	43	53	79	90	76
30	63	46	21	14	---	13	41	44	54	80	89	75
31	59	---	19	13	---	13	---	44	---	81	90	---
TOTAL	2373	1510	901	519	415	492	1116	1219	1432	2177	2682	2737
MEAN	76.5	50.3	29.1	16.7	14.8	15.9	37.2	39.3	47.7	70.2	86.5	91.2
MAX	87	64	41	18	25	20	61	44	54	81	92	108
MIN	59	42	19	13	10	12	11	33	45	56	80	75
AC-FT	4710	3000	1790	1030	823	976	2210	2420	2840	4320	5320	5430

CAL YR 1984 TOTAL 50574 MEAN 138 MAX 741 MIN 19 AC-FT 100300
WTR YR 1985 TOTAL 17573 MEAN 48.1 MAX 108 MIN 10 AC-FT 34860

12469500 LENORE LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°30'52", long 119°30'06", in SE¼SW¼ sec.1, T.23 N., R.26 E., Grant County, Hydrologic Unit 17020014, on east shore 1,000 ft downlake from outlet gate on Alkali Lake, and 8.8 mi north of town of Soap Lake.

DRAINAGE AREA.--367 mi², of which 281 mi² in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--July 1936, March 1938 to December 1956 (fragmentary), January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is U.S. Bureau of Reclamation datum. Prior to Dec. 20, 1956, nonrecording gages 0.90 mi uplake at same datum.

REMARKS.--Some diversion from tributaries for irrigation. During extreme high stages of Soap Lake, water is pumped from Soap Lake into Lenore Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,087.73 ft June 12, 1953; minimum, 1,072.72 ft Jan. 2, 1959 (affected by wind).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,092.2 ft, from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,080.97 ft Apr. 2; minimum, 1,077.06 ft Sept. 26.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1077.66	1077.20	1077.91	1078.54	1079.28	1080.03	1080.92	1080.29	1079.68	1078.55	1077.50	1077.18
2	1077.63	1077.24	1077.92	1078.56	1079.31	1080.05	1080.94	1080.28	1079.64	1078.53	1077.49	1077.19
3	1077.61	1077.28	1077.93	1078.58	1079.34	1080.07	1080.91	1080.25	1079.61	1078.50	1077.48	1077.17
4	1077.58	1077.27	1077.95	1078.59	1079.36	1080.11	1080.89	1080.22	1079.59	1078.47	1077.48	1077.17
5	1077.55	1077.27	1077.96	1078.61	1079.38	1080.14	1080.87	1080.20	1079.54	1078.41	1077.46	1077.18
6	1077.52	1077.30	1077.98	1078.64	1079.41	1080.17	1080.85	1080.18	1079.51	1078.36	1077.44	1077.17
7	1077.50	1077.31	1078.01	1078.67	1079.44	1080.20	1080.83	1080.15	1079.52	1078.33	1077.44	1077.14
8	1077.48	1077.32	1078.04	1078.68	1079.48	1080.22	1080.82	1080.13	1079.47	1078.28	1077.41	1077.13
9	1077.46	1077.33	1078.06	1078.70	1079.51	1080.25	1080.80	1080.10	1079.44	1078.25	1077.39	1077.15
10	1077.44	1077.36	1078.08	1078.73	1079.54	1080.28	1080.79	1080.08	1079.40	1078.21	1077.35	1077.18
11	1077.42	1077.38	1078.10	1078.75	1079.58	1080.30	1080.78	1080.03	1079.37	1078.19	1077.36	1077.18
12	1077.39	1077.44	1078.14	1078.76	1079.61	1080.33	1080.76	1079.99	1079.32	1078.17	1077.33	1077.19
13	1077.36	1077.47	1078.16	1078.79	1079.64	1080.35	1080.74	1079.97	1079.29	1078.14	1077.34	1077.19
14	1077.32	1077.48	1078.18	1078.82	1079.66	1080.38	1080.72	1079.95	1079.25	1078.14	1077.33	1077.20
15	1077.27	1077.49	1078.21	1078.83	1079.69	1080.40	1080.69	1079.91	1079.20	1078.14	1077.27	1077.20
16	1077.25	1077.50	1078.23	1078.86	1079.71	1080.43	1080.68	1079.88	1079.13	1078.12	1077.29	1077.20
17	1077.22	1077.52	1078.25	1078.88	1079.74	1080.46	1080.66	1079.87	1079.10	1078.08	1077.29	1077.19
18	1077.19	1077.56	1078.26	1078.90	1079.76	1080.49	1080.63	1079.84	1079.08	1078.04	1077.29	1077.21
19	1077.17	1077.57	1078.27	1078.92	1079.79	1080.51	1080.59	1079.81	1079.05	1078.01	1077.29	1077.23
20	1077.15	1077.61	1078.30	1078.99	1079.81	1080.54	1080.57	1079.78	1079.00	1077.98	1077.27	1077.23
21	1077.13	1077.62	1078.32	1079.01	1079.84	1080.56	1080.55	1079.77	1078.95	1077.93	1077.27	1077.22
22	1077.11	1077.64	1078.34	1079.04	1079.86	1080.60	1080.52	1079.78	1078.90	1077.86	1077.26	1077.22
23	1077.12	1077.66	1078.36	1079.07	1079.89	1080.63	1080.50	1079.79	1078.84	1077.81	1077.26	1077.22
24	1077.14	1077.68	1078.38	1079.10	1079.90	1080.66	1080.47	1079.82	1078.79	1077.75	1077.26	1077.22
25	1077.15	1077.70	1078.40	1079.12	1079.93	1080.69	1080.44	1079.81	1078.76	1077.72	1077.26	1077.22
26	1077.16	1077.72	1078.42	1079.14	1079.95	1080.72	1080.43	1079.81	1078.74	1077.66	1077.23	1077.19
27	1077.17	1077.79	1078.45	1079.17	1079.98	1080.78	1080.41	1079.82	1078.71	1077.61	1077.23	1077.17
28	1077.19	1077.84	1078.47	1079.19	1080.01	1080.81	1080.36	1079.81	1078.68	1077.58	1077.22	1077.19
29	1077.19	1077.86	1078.48	1079.21	---	1080.84	1080.34	1079.77	1078.64	1077.54	1077.22	1077.19
30	1077.21	1077.89	1078.51	1079.23	---	1080.87	1080.31	1079.73	1078.59	1077.52	1077.21	1077.19
31	1077.18	---	1078.53	1079.25	---	1080.90	---	1079.70	---	1077.51	1077.19	---
MEAN	1077.32	1077.51	1078.21	1078.88	1079.66	1080.44	1080.66	1079.95	1079.16	1078.04	1077.33	1077.19
MAX	1077.66	1077.89	1078.53	1079.25	1080.01	1080.90	1080.94	1080.29	1079.68	1078.55	1077.50	1077.23
MIN	1077.11	1077.20	1077.91	1078.54	1079.28	1080.03	1080.31	1079.70	1078.59	1077.51	1077.19	1077.13

CAL YR 1984	MEAN	1079.74	MAX	1082.01	MIN	1077.11
WTR YR 1985	MEAN	1078.69	MAX	1080.94	MIN	1077.11

12470000 SOAP LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°24'11", long 119°29'11", in NW¼SW¼ sec.18, T.22 N., R.27 E., Grant County, Hydrologic Unit 17020014, on east shore 0.9 mi north of town of Soap Lake.

DRAINAGE AREA.--413 mi^2, of which 281 mi^2 in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--May to August 1936, March 1938 to February 1957 (fragmentary), March 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is U.S. Bureau of Reclamation datum. Prior to Feb. 4, 1953, nonrecording gage at site 0.2 mi uplake. Feb. 4, 1953, to June 8, 1954, nonrecording gage at site 1.5 mi uplake and June 9, 1954, to June 21, 1957, water-stage recorder at site 0.2 mi uplake.

REMARKS.--Some diversion from tributaries for irrigation. During extreme high stages of Soap Lake, water is pumped from Soap Lake into Lenore Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,079.20 ft Jan. 28, 1953; minimum observed, 1,070.87 ft Oct. 21, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,083.1 ft, from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,077.01 ft Mar. 30, Apr. 2, 3; minimum, 1,075.18 ft Sept. 12, 27.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1075.77	1076.26	1076.44	1076.68	1076.85	1076.99	1076.84	1076.59	1076.17	1075.69	1075.27
2	---	1075.79	1076.27	1076.46	1076.69	1076.84	1076.99	1076.84	1076.58	1076.17	1075.68	1075.27
3	---	1075.80	1076.27	1076.46	1076.70	1076.85	1077.00	1076.85	1076.58	1076.16	1075.67	1075.27
4	---	1075.81	1076.27	1076.46	1076.70	1076.86	1076.98	1076.84	1076.57	1076.15	1075.66	1075.26
5	---	1075.82	1076.27	1076.47	1076.70	1076.87	1076.98	1076.82	1076.56	1076.13	1075.63	1075.25
6	---	1075.83	1076.28	1076.48	1076.70	1076.87	1076.98	1076.82	1076.55	1076.12	1075.62	1075.23
7	---	1075.84	1076.29	1076.48	1076.70	1076.89	1076.98	1076.81	1076.57	1076.11	1075.61	1075.22
8	---	1075.86	1076.30	1076.49	1076.70	1076.89	1076.98	1076.80	1076.55	1076.11	1075.57	1075.21
9	1075.65	1075.86	1076.30	1076.49	1076.72	1076.89	1076.98	1076.79	1076.54	1076.10	1075.54	1075.22
10	1075.67	1075.89	1076.31	1076.49	1076.70	1076.90	1076.98	1076.79	1076.52	1076.08	1075.51	1075.22
11	1075.69	1075.90	1076.31	1076.50	1076.70	1076.90	1076.97	1076.76	1076.52	1076.06	1075.49	1075.22
12	1075.69	1075.94	1076.34	1076.51	1076.70	1076.90	1076.97	1076.74	1076.52	1076.04	1075.48	1075.21
13	1075.70	1075.96	1076.34	1076.51	1076.71	1076.90	1076.97	1076.74	1076.49	1075.99	1075.46	1075.22
14	1075.69	1075.97	1076.35	1076.52	1076.70	1076.90	1076.97	1076.75	1076.49	1075.98	1075.46	1075.23
15	1075.69	1075.98	1076.36	1076.53	1076.70	1076.91	1076.96	1076.75	1076.47	1075.97	1075.44	1075.22
16	1075.70	1075.99	1076.36	1076.54	1076.70	1076.91	1076.96	1076.74	1076.43	1075.95	1075.41	1075.22
17	1075.70	1075.99	1076.37	1076.55	1076.70	1076.91	1076.95	1076.73	1076.41	1075.92	1075.40	1075.22
18	1075.70	1076.02	1076.35	1076.55	1076.70	1076.92	1076.93	1076.73	1076.41	1075.91	1075.40	1075.23
19	1075.70	1076.04	1076.36	1076.56	1076.70	1076.92	1076.92	1076.72	1076.40	1075.90	1075.39	1075.23
20	1075.71	1076.07	1076.37	1076.61	1076.70	1076.92	1076.91	1076.71	1076.37	1075.89	1075.38	1075.23
21	1075.71	1076.08	1076.37	1076.62	1076.70	1076.92	1076.91	1076.70	1076.34	1075.88	1075.37	1075.23
22	1075.72	1076.09	1076.38	1076.62	1076.70	1076.93	1076.90	1076.70	1076.32	1075.86	1075.36	1075.23
23	1075.74	1076.10	1076.38	1076.63	1076.70	1076.94	1076.89	1076.70	1076.28	1075.82	1075.36	1075.23
24	1075.75	1076.12	1076.39	1076.63	1076.75	1076.94	1076.88	1076.70	1076.24	1075.77	1075.36	1075.23
25	1075.76	1076.12	1076.40	1076.64	1076.83	1076.94	1076.87	1076.68	1076.22	1075.76	1075.35	1075.21
26	1075.77	1076.13	1076.41	1076.64	1076.84	1076.95	1076.86	1076.68	1076.22	1075.75	1075.34	1075.23
27	1075.77	1076.18	1076.41	1076.65	1076.84	1076.99	1076.86	1076.66	1076.21	1075.74	1075.33	1075.20
28	1075.78	1076.22	1076.42	1076.65	1076.84	1076.99	1076.86	1076.65	1076.20	1075.73	1075.32	1075.20
29	1075.78	1076.23	1076.43	1076.66	---	1076.99	1076.84	1076.64	1076.19	1075.73	1075.31	1075.19
30	1075.78	1076.26	1076.44	1076.66	---	1076.99	1076.84	1076.61	1076.18	1075.71	1075.30	1075.20
31	1075.77	---	1076.43	1076.66	---	1076.99	---	1076.60	---	1075.71	1075.27	---
MEAN	---	1075.99	1076.35	1076.55	1076.72	1076.92	1076.94	1076.74	1076.42	1075.95	1075.46	1075.23
MAX	---	1076.26	1076.44	1076.66	1076.84	1076.99	1077.00	1076.85	1076.59	1076.17	1075.69	1075.27
MIN	---	1075.77	1076.26	1076.44	1076.68	1076.84	1076.84	1076.60	1076.18	1075.71	1075.27	1075.19

12470500 ROCKY FORD CREEK NEAR EPHRATA, WA

LOCATION.--Lat 47°18'46", long 119°26'40", in SW¼SW¼ sec.16, T.21 N., R.27 E., Grant County, Hydrologic Unit 17020015, on right bank 1.4 mi downstream from source at Rocky Ford Springs, 5.0 mi east of Ephrata, and 6.3 mi upstream from mouth.

DRAINAGE AREA.--458 mi², of which 446 mi² in vicinity of Banks and Soap Lakes is noncontributing.

PERIOD OF RECORD.--June 1909 to April 1910, July to December 1911, August 1942 to current year. Prior to January 1910, published as Upper Crab Creek near Ephrata.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,068.51 ft above U.S. Bureau of Reclamation datum. Prior to Jan. 1, 1912, nonrecording gages at sites 4.5 mi to 5.5 mi downstream at different datums. Aug. 19, 1942, to May 23, 1945, water-stage recorder at site 3.5 mi downstream at datum 5.37 ft lower. May 23, 1945, to June 15, 1977, water-stage recorder at site 0.2 mi downstream at datum 3.53 ft lower.

REMARKS.--No estimated daily discharges. Records good. Base flow derived from Rocky Ford Springs, no known regulation or diversion.

AVERAGE DISCHARGE.--43 years (water years 1943-85), 76.2 ft³/s, 55,210 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 212 ft³/s Apr. 15-18, 1956, gage height, 3.58 ft datum then in use; minimum observed, 20 ft³/s Aug. 13-18, 1911.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 99 ft³/s Oct. 10, maximum gage height, 5.63 ft Oct. 1; minimum discharge, 47 ft³/s Apr. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	90	82	69	61	53	51	49	63	74	86	89
2	94	91	81	68	61	53	50	50	63	75	86	89
3	94	91	80	69	60	54	50	49	64	75	86	89
4	94	89	79	68	60	54	49	49	65	76	86	90
5	97	89	79	68	60	53	49	49	65	77	86	90
6	97	89	79	69	60	53	49	50	66	77	86	89
7	96	89	79	69	60	53	49	50	66	78	87	89
8	95	88	78	68	59	53	49	52	66	79	86	89
9	98	87	78	68	59	52	49	52	67	80	87	89
10	99	87	78	68	58	52	49	52	68	80	87	89
11	98	88	77	68	58	53	49	52	68	81	88	89
12	98	89	76	67	58	53	48	53	69	82	88	89
13	97	88	76	66	57	53	48	53	68	81	88	89
14	97	87	77	65	57	53	49	53	68	82	89	89
15	96	85	77	64	57	53	49	54	69	82	89	89
16	96	85	76	64	56	52	49	54	69	82	89	89
17	95	85	75	65	56	52	48	55	71	82	90	88
18	97	87	74	65	56	52	49	57	71	83	90	88
19	95	86	73	66	56	52	48	57	72	84	90	88
20	95	86	73	67	55	52	48	57	72	85	90	88
21	95	85	73	66	55	51	49	56	73	85	90	88
22	94	84	73	66	55	52	48	57	74	85	90	88
23	94	84	74	66	54	52	49	58	74	85	90	87
24	94	83	73	65	54	51	49	59	75	86	90	87
25	94	83	73	65	54	50	49	59	76	85	90	87
26	93	84	72	64	54	50	49	60	77	84	90	87
27	92	85	72	63	53	50	50	60	76	84	90	88
28	92	84	71	63	53	49	50	60	72	85	89	87
29	92	83	70	63	---	49	49	60	72	85	89	87
30	92	83	69	63	---	50	49	61	72	86	89	87
31	90	---	69	62	---	50	---	62	---	86	89	---
TOTAL	2944	2594	2336	2047	1596	1609	1470	1699	2091	2531	2740	2651
MEAN	95.0	86.5	75.4	66.0	57.0	51.9	49.0	54.8	69.7	81.6	88.4	88.4
MAX	99	91	82	69	61	54	51	62	77	86	90	90
MIN	90	83	69	62	53	49	48	49	63	74	86	87
AC-FT	5840	5150	4630	4060	3170	3190	2920	3370	4150	5020	5430	5260

CAL YR 1984 TOTAL 29483 MEAN 80.6 MAX 110 MIN 52 AC-FT 58480
WTR YR 1985 TOTAL 26308 MEAN 72.1 MAX 99 MIN 48 AC-FT 52180

12471000 MOSES LAKE AT MOSES LAKE, WA

LOCATION.--Lat 47°06'11", long 119°19'02", in SW¼SW¼ sec.28, T.19 N., R.28 E., Grant County, Hydrologic Unit 17020015, on east shore 35 ft north of Interstate 90, 1.7 mi upstream from outlet, at town of Moses Lake, and at mile 55.9.

DRAINAGE AREA.--3,080 mi², of which 665 mi² is noncontributing.

PERIOD OF RECORD.--June 1909 to September 1914 and November 1936 to September 1945 (fragmentary), October 1945 to current year. Published as "at Neppel" 1912-14.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is U.S. Bureau of Reclamation datum. Prior to Apr. 3, 1910, nonrecording gage at site 0.6 mi northeast at different datum. Apr. 3, 1910, to Sept. 30, 1914, and Nov. 19, 1936, to Nov. 24, 1944, nonrecording gages at site 2.8 mi northeast at Parker Horn at various datums. Oct. 30, 1945, to Mar. 12, 1955, water-stage recorder at site near west shore on downstream side of bridge on U.S. Highway 10 at present datum.

REMARKS.--Elevation controlled between 1,041 ft and 1,047 ft by two outlet structures at south end of lake. Many small diversions for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,048.29 ft Mar. 10, 1950; minimum observed, 1,038.17 ft Aug. 27, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,047.11 ft May 13; minimum, 1,043.62 ft Jan. 19, Jan. 27 to Feb. 1.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1046.92	1044.33	1044.05	1043.76	1043.64	1045.10	1045.82	1046.95	1046.68	1046.73	1046.66	1046.86
2	1046.91	1044.18	1044.05	1043.75	1043.65	1045.15	1045.86	1046.96	1046.71	1046.76	1046.68	1046.89
3	1046.89	1044.03	1044.03	1043.74	1043.65	1045.18	1045.89	1046.96	1046.74	1046.81	1046.76	1046.93
4	1046.88	1043.90	1044.02	1043.73	1043.66	1045.22	1045.92	1046.97	1046.76	1046.85	1046.85	1046.97
5	1046.87	1043.81	1044.00	1043.72	1043.68	1045.26	1045.96	1046.98	1046.77	1046.84	1046.86	1046.97
6	1046.85	1043.71	1043.99	1043.71	1043.69	1045.28	1045.99	1046.99	1046.80	1046.86	1046.81	1046.98
7	1046.84	1043.66	1043.98	1043.70	1043.72	1045.32	1046.02	1047.00	1046.82	1046.87	1046.76	1046.99
8	1046.83	1043.69	1043.96	1043.70	1043.75	1045.34	1046.04	1047.01	1046.84	1046.89	1046.74	1047.01
9	1046.81	1043.71	1043.96	1043.69	1043.77	1045.37	1046.07	1047.02	1046.86	1046.91	1046.72	1047.04
10	1046.81	1043.75	1043.95	1043.68	1043.80	1045.40	1046.10	1047.02	1046.88	1046.92	1046.69	1047.05
11	1046.80	1043.79	1043.94	1043.67	1043.83	1045.43	1046.13	1047.02	1046.89	1046.92	1046.65	1047.01
12	1046.80	1043.83	1043.94	1043.67	1043.86	1045.47	1046.16	1047.02	1046.92	1046.92	1046.64	1046.98
13	1046.79	1043.85	1043.93	1043.66	1043.90	1045.50	1046.19	1047.03	1046.92	1046.92	1046.60	1046.98
14	1046.78	1043.86	1043.93	1043.65	1043.94	1045.54	1046.22	1047.04	1046.94	1046.93	1046.59	1046.96
15	1046.76	1043.89	1043.92	1043.65	1044.00	1045.57	1046.25	1047.00	1046.93	1046.93	1046.60	1046.95
16	1046.75	1043.89	1043.92	1043.64	1044.05	1045.60	1046.25	1046.96	1046.91	1046.92	1046.55	1046.93
17	1046.73	1043.90	1043.90	1043.64	1044.11	1045.63	1046.28	1046.91	1046.89	1046.89	1046.55	1046.93
18	1046.71	1043.92	1043.89	1043.63	1044.16	1045.66	1046.36	1046.86	1046.87	1046.89	1046.57	1046.93
19	1046.70	1043.94	1043.88	1043.63	1044.21	1045.69	1046.45	1046.81	1046.84	1046.87	1046.58	1046.92
20	1046.68	1043.97	1043.87	1043.66	1044.26	1045.72	1046.54	1046.78	1046.79	1046.84	1046.60	1046.87
21	1046.66	1043.99	1043.85	1043.66	1044.31	1045.74	1046.62	1046.77	1046.73	1046.83	1046.61	1046.83
22	1046.64	1044.00	1043.84	1043.65	1044.36	1045.75	1046.70	1046.76	1046.71	1046.82	1046.63	1046.81
23	1046.63	1044.02	1043.84	1043.64	1044.43	1045.76	1046.72	1046.76	1046.70	1046.79	1046.65	1046.79
24	1046.57	1044.04	1043.83	1043.64	1044.53	1045.78	1046.74	1046.75	1046.67	1046.76	1046.68	1046.77
25	1046.29	1044.04	1043.82	1043.63	1044.69	1045.77	1046.77	1046.73	1046.67	1046.75	1046.70	1046.75
26	1045.92	1044.04	1043.82	1043.63	1044.85	1045.77	1046.78	1046.73	1046.67	1046.74	1046.72	1046.74
27	1045.53	1044.07	1043.81	1043.63	1044.94	1045.78	1046.81	1046.71	1046.66	1046.73	1046.74	1046.71
28	1045.19	1044.07	1043.80	1043.62	1045.03	1045.78	1046.86	1046.71	1046.66	1046.73	1046.76	1046.68
29	1044.91	1044.04	1043.79	1043.62	---	1045.75	1046.89	1046.69	1046.68	1046.72	1046.77	1046.65
30	1044.69	1044.05	1043.79	1043.62	---	1045.75	1046.92	1046.67	1046.70	1046.69	1046.78	1046.63
31	1044.52	---	1043.77	1043.62	---	1045.78	---	1046.68	---	1046.67	1046.81	---
MEAN	1046.44	1043.93	1043.91	1043.67	1044.09	1045.54	1046.34	1046.88	1046.79	1046.83	1046.69	1046.88
MAX	1046.92	1044.33	1044.05	1043.76	1045.03	1045.78	1046.92	1047.04	1046.94	1046.93	1046.86	1047.05
MIN	1044.52	1043.66	1043.77	1043.62	1043.64	1045.10	1045.82	1046.67	1046.66	1046.67	1046.55	1046.63

CAL YR 1984 MEAN 1046.00 MAX 1047.22 MIN 1043.66
WTR YR 1985 MEAN 1045.67 MAX 1047.05 MIN 1043.62

12472600 CRAB CREEK NEAR BEVERLY, WA

LOCATION.--Lat 46°49'48", long 119°49'48", in NW¼SW¼ sec. 33, T.16 N., R.24 E., Grant County, Hydrologic Unit 17020015, on right bank 4.9 mi east of Beverly, and at mile 4.5.

DRAINAGE AREA.--4,842 mi², of which 665 mi² in the vicinity of Soap Lake is noncontributing.

PERIOD OF RECORD.--February 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 3-15, 18-23, Dec. 30 to Jan. 19, Feb. 2-12. Records good except for winter periods, which are fair. Many diversions above station for irrigation. Flow largely regulated by Potholes Reservoir 41.3 mi upstream. A major portion of flow is return flows, including transbasin diversions, from parts of the Columbia Basin project. Chemical analyses water years 1959-72, 1975-80. Daily water temperatures August 1959 to September 1962, July 1968 to August 1970.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 936 ft³/s Mar. 3, 1980, gage height, 6.46 ft; minimum, 10 ft³/s Jan. 10, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 403 ft³/s Feb. 13, gage height, 4.59 ft; minimum daily discharge, 130 ft³/s Jan. 3, Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	337	233	278	140	170	270	172	232	225	188	230	265
2	340	237	245	135	160	295	166	226	221	198	251	275
3	340	247	215	130	140	296	160	205	226	196	263	287
4	332	244	205	140	130	298	164	200	226	186	267	293
5	330	236	190	160	140	307	165	201	223	181	271	299
6	328	230	190	170	150	306	161	212	227	184	280	302
7	322	235	200	180	180	298	163	218	225	185	284	303
8	316	231	200	140	190	296	170	219	233	185	277	303
9	314	229	205	150	200	295	180	216	243	186	273	314
10	315	228	205	160	210	287	194	197	251	190	278	327
11	319	230	200	160	220	283	193	190	256	189	281	338
12	326	236	195	160	290	295	192	197	238	181	283	345
13	320	245	190	165	375	282	193	202	211	187	289	353
14	316	240	185	165	342	218	190	215	195	188	289	360
15	321	229	210	160	252	201	195	225	182	196	281	355
16	324	226	213	160	245	211	195	217	171	207	271	352
17	331	224	209	170	244	213	189	206	169	219	255	359
18	342	232	160	160	233	209	178	198	162	224	247	370
19	351	232	140	170	224	206	173	190	161	232	246	387
20	354	235	140	185	219	192	184	184	160	240	247	393
21	354	247	140	189	218	183	185	184	159	234	254	384
22	352	237	160	191	233	187	182	179	156	224	257	363
23	352	228	180	189	251	191	201	167	154	218	260	342
24	356	233	197	189	261	191	215	169	159	222	263	333
25	352	234	201	187	264	190	221	175	159	216	259	330
26	334	227	197	186	247	188	225	186	160	207	259	334
27	305	228	190	186	233	195	229	200	167	199	264	335
28	279	240	186	186	235	187	235	208	177	201	269	328
29	261	254	183	185	---	176	242	205	178	205	267	313
30	247	286	170	177	---	174	238	210	182	213	258	308
31	241	---	140	180	---	171	---	215	---	220	260	---
TOTAL	10011	7093	5919	5205	6256	7291	5750	6248	5856	6301	8233	9950
MEAN	323	236	191	168	223	235	192	202	195	203	266	332
MAX	356	286	278	191	375	307	242	232	256	240	289	393
MIN	241	224	140	130	130	171	160	167	154	181	230	265
AC-FT	19860	14070	11740	10320	12410	14460	11410	12390	11620	12500	16330	19740

CAL YR 1984 TOTAL 98217 MEAN 268 MAX 398 MIN 135 AC-FT 194800
WTR YR 1985 TOTAL 84113 MEAN 230 MAX 393 MIN 130 AC-FT 166800

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi downstream from Priest Rapids Dam, 14.7 mi south of Beverly, and at mile 394.5.

DRAINAGE AREA.--96,000 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-82-2: 1965(m), 1971(m).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi downstream at datum 388.7 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi upstream at datum 499.3 ft above National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Diversions for irrigation of about 500,000 acres upstream from station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--68 years, 119,900 ft³/s, 86,870,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s June 12, 1948, gage height, 59.35 ft, site and datum then in use; minimum, 4,120 ft³/s Feb. 10, 1932, gage height, 11.40 ft, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s, based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 219,000 ft³/s Jan. 19, elevation, 412.72 ft; minimum, 37,100 ft³/s Aug. 5, elevation, 396.51 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80400	96600	80900	89600	154000	135000	68500	127000	121000	105000	59600	51200
2	98600	62800	62700	125000	149000	126000	81300	135000	84900	122000	58300	60000
3	89000	53300	101000	157000	153000	124000	95400	134000	123000	110000	41500	88400
4	82600	47600	134000	152000	154000	125000	78300	127000	115000	76900	39000	75500
5	90600	72100	130000	135000	179000	132000	65300	130000	112000	71900	60600	63800
6	80700	69100	115000	138000	179000	127000	63800	154000	122000	87600	74600	65400
7	60000	67000	121000	136000	158000	129000	62500	159000	98900	87000	88400	46800
8	70100	81100	87200	137000	154000	127000	62500	163000	68700	78800	81900	40700
9	80200	92300	94400	153000	150000	114000	63200	159000	76800	84700	73900	60300
10	72700	60900	107000	146000	143000	121000	62600	159000	98600	80600	65600	54500
11	88400	57200	106000	156000	130000	117000	62500	157000	87700	77600	52300	56200
12	78900	61100	94000	159000	129000	80900	62700	155000	104000	72800	64800	63700
13	78800	84000	108000	140000	131000	116000	62500	146000	105000	56300	82900	59300
14	68600	94600	107000	135000	148000	111000	63700	156000	111000	57200	91100	42500
15	93500	99400	98300	130000	155000	120000	82200	160000	117000	86800	89400	39200
16	94300	87800	80800	133000	149000	104000	126000	147000	98400	108000	68500	63300
17	90300	101000	111000	154000	146000	75500	129000	98100	104000	109000	71000	68200
18	86600	71400	134000	163000	151000	99000	123000	128000	143000	78200	65800	72400
19	73100	88800	138000	163000	153000	110000	120000	110000	142000	67300	76700	51000
20	65500	110000	138000	155000	152000	98600	132000	136000	135000	60200	58100	65000
21	81300	96200	134000	157000	134000	114000	89200	134000	130000	64100	68000	52400
22	92400	84600	112000	157000	138000	119000	119000	126000	97300	92100	59900	60400
23	96000	68300	76300	161000	132000	120000	139000	127000	84300	98400	56900	86300
24	88800	58200	86700	174000	128000	100000	135000	137000	105000	89600	54200	88900
25	92800	51500	69800	165000	132000	114000	131000	113000	106000	79100	57500	95100
26	89400	64500	81100	159000	132000	120000	122000	94800	119000	66000	80800	94000
27	67500	109000	98700	133000	128000	120000	120000	110000	112000	55800	89500	89900
28	49200	112000	103000	145000	134000	118000	119000	131000	118000	51800	63800	81000
29	80200	95800	98000	151000	---	122000	126000	143000	111000	69900	63800	76700
30	91700	85500	74900	167000	---	103000	140000	150000	103000	60000	66400	103000
31	77100	---	90000	167000	---	67600	---	122000	---	66100	44200	---
TOTAL	2529300	2383700	3172800	4592600	4075000	3509600	2907200	4227900	3253600	2470800	2069000	2015100
MEAN	81590	79460	102300	148100	145500	113200	96910	136400	108500	79700	66740	67170
MAX	98600	112000	138000	174000	179000	135000	140000	163000	143000	122000	91100	103000
MIN	49200	47600	62700	89600	128000	67600	62500	94800	68700	51800	39000	39200
AC-FT	5017000	4728000	6293000	9109000	8083000	6961000	5766000	8386000	6454000	4901000	4104000	3997000

CAL YR 1984 TOTAL 41528100 MEAN 113500 MAX 207000 MIN 47600 AC-FT 82371000
WTR YR 1985 TOTAL 37206600 MEAN 101900 MAX 179000 MIN 39000 AC-FT 73799000

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1980 to current year. Temperature records for site "at Vernita Bridge, near Priest Rapids Dam" (station 12472900) for period July 1974 to September 1980 are equivalent.

INSTRUMENTATION.--Temperature recorder since December 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C Aug. 4, 1985; minimum, 1.0°C Feb. 3-11, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5°C Aug. 4; minimum, 1.0°C Feb. 3-11.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.0	16.0	16.5	11.5	11.0	11.5	9.0	8.5	8.5	3.0	3.0	3.0
2	17.5	16.5	17.0	12.0	11.0	11.5	8.5	8.0	8.0	3.0	3.0	3.0
3	17.0	16.5	17.0	12.0	11.0	11.5	8.0	7.5	7.5	3.0	3.0	3.0
4	17.0	16.5	17.0	12.0	11.0	11.5	7.5	7.5	7.5	3.0	3.0	3.0
5	17.0	16.0	16.5	11.5	11.0	11.0	7.5	7.0	7.5	3.0	2.5	3.0
6	17.0	16.5	16.5	11.5	11.0	11.0	7.5	7.0	7.0	2.5	2.5	2.5
7	17.5	16.5	17.0	11.5	11.0	11.0	7.0	7.0	7.0	3.0	2.5	2.5
8	17.0	16.5	17.0	11.0	11.0	11.0	7.0	6.5	7.0	3.0	2.5	3.0
9	17.0	16.0	17.0	11.5	10.5	11.0	7.0	6.5	6.5	3.0	3.0	3.0
10	17.0	16.5	17.0	11.5	10.5	11.0	7.0	6.5	6.5	3.0	3.0	3.0
11	17.0	16.0	16.5	11.0	10.5	11.0	6.5	6.5	6.5	3.0	3.0	3.0
12	16.5	16.0	16.0	11.0	10.5	10.5	6.5	6.5	6.5	3.0	3.0	3.0
13	16.0	15.5	16.0	10.5	10.5	10.5	6.5	6.0	6.0	3.0	3.0	3.0
14	16.0	15.5	15.5	11.0	10.5	10.5	6.5	6.0	6.0	3.0	2.5	3.0
15	15.5	15.0	15.5	10.5	10.5	10.5	7.0	6.0	6.0	3.0	3.0	3.0
16	15.5	15.0	15.5	11.0	10.0	10.5	6.5	6.0	6.0	3.0	2.5	2.5
17	15.5	14.5	15.0	11.0	10.0	10.5	6.0	5.5	5.5	2.5	2.5	2.5
18	15.0	14.5	15.0	11.0	10.5	10.5	5.5	4.5	5.0	2.5	2.5	2.5
19	15.0	14.0	14.5	11.0	10.5	10.5	5.0	4.5	5.0	2.5	2.5	2.5
20	14.5	14.0	14.0	11.0	10.5	10.5	5.0	4.5	4.5	2.5	2.5	2.5
21	14.5	14.0	14.0	11.0	10.5	10.5	4.5	4.5	4.5	2.5	2.5	2.5
22	14.5	13.5	14.0	10.5	10.5	10.5	4.5	4.5	4.5	2.5	2.5	2.5
23	14.0	13.5	13.5	10.5	10.0	10.5	5.0	4.5	5.0	2.5	2.5	2.5
24	14.0	13.0	13.5	10.5	10.0	10.0	4.5	4.5	4.5	2.5	2.5	2.5
25	14.0	13.5	13.5	10.5	10.0	10.0	4.5	4.5	4.5	2.5	2.5	2.5
26	13.5	13.0	13.5	10.0	9.5	9.5	4.5	4.0	4.5	2.5	2.5	2.5
27	13.5	12.0	13.0	9.5	9.5	9.5	4.5	4.0	4.5	2.5	2.5	2.5
28	13.0	12.0	12.5	9.5	9.0	9.5	4.0	4.0	4.0	2.5	2.0	2.5
29	13.0	12.0	12.5	9.5	9.0	9.0	4.0	3.5	4.0	2.5	2.0	2.5
30	12.5	12.0	12.0	9.0	9.0	9.0	4.0	3.0	3.5	2.0	2.0	2.0
31	12.0	11.5	12.0	---	---	---	3.5	3.0	3.5	2.0	2.0	2.0
MONTH	17.5	11.5	15.0	12.0	9.0	10.5	9.0	3.0	5.5	3.0	2.0	2.5

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.0	1.5	1.5	3.5	3.0	3.5	6.0	5.0	5.5	9.0	8.0	8.5
2	1.5	1.5	1.5	3.5	3.0	3.0	6.0	6.0	6.0	9.0	8.5	9.0
3	1.5	1.0	1.0	3.5	3.0	3.0	6.0	5.5	6.0	9.5	9.0	9.0
4	1.0	1.0	1.0	3.5	3.0	3.0	7.0	5.5	6.0	9.5	9.0	9.0
5	1.0	1.0	1.0	3.0	3.0	3.0	7.5	6.0	6.5	9.5	9.0	9.0
6	1.0	1.0	1.0	3.5	3.0	3.0	7.5	6.5	6.5	9.5	9.0	9.5
7	1.0	1.0	1.0	3.5	3.0	3.0	7.5	6.5	7.0	9.5	9.5	9.5
8	1.0	1.0	1.0	3.5	3.0	3.0	8.0	6.5	7.0	10.0	9.5	9.5
9	1.0	1.0	1.0	3.5	3.0	3.5	8.0	6.5	7.0	10.0	10.0	10.0
10	1.5	1.0	1.0	3.5	3.0	3.5	8.5	7.0	7.5	10.5	10.0	10.0
11	1.5	1.0	1.5	3.5	3.0	3.5	8.5	7.5	8.0	10.0	10.0	10.0
12	1.5	1.5	1.5	4.5	3.5	4.0	9.0	7.5	8.0	10.0	10.0	10.0
13	2.0	1.5	1.5	4.0	3.5	3.5	9.0	7.5	8.5	10.5	10.0	10.0
14	2.0	1.5	1.5	4.0	3.5	3.5	9.5	8.0	8.5	10.5	10.5	10.5
15	2.0	1.5	2.0	4.0	3.5	3.5	8.5	8.0	8.5	11.0	10.5	10.5
16	2.5	2.0	2.0	4.5	3.5	4.0	8.5	8.0	8.0	11.0	10.5	11.0
17	2.5	2.0	2.0	5.0	4.0	4.0	8.5	8.0	8.0	12.0	11.0	11.5
18	2.5	2.0	2.5	4.5	4.0	4.0	8.5	8.0	8.5	12.0	11.0	11.5
19	2.5	2.5	2.5	4.5	4.0	4.5	8.5	8.0	8.0	12.5	12.0	12.0
20	2.5	2.0	2.5	4.5	4.0	4.5	8.0	7.5	8.0	12.5	12.0	12.0
21	2.5	2.5	2.5	4.5	4.0	4.5	8.5	7.5	8.0	12.5	12.0	12.0
22	3.0	2.5	2.5	4.5	4.5	4.5	8.0	7.5	8.0	13.0	12.0	12.5
23	3.0	3.0	3.0	4.5	4.5	4.5	8.0	7.5	8.0	13.0	12.5	13.0
24	3.0	3.0	3.0	5.0	4.5	5.0	8.0	7.5	7.5	13.0	13.0	13.0
25	3.0	3.0	3.0	5.0	4.5	4.5	7.5	7.0	7.5	14.0	13.0	13.5
26	3.5	3.0	3.0	4.5	4.5	4.5	8.0	7.0	7.5	14.5	13.0	13.5
27	3.5	3.0	3.0	4.5	4.0	4.5	8.5	7.5	8.0	14.0	13.5	13.5
28	3.0	3.0	3.0	5.0	4.5	4.5	8.5	8.0	8.0	14.0	13.0	13.5
29	---	---	---	5.0	4.5	4.5	8.5	8.0	8.0	13.5	13.0	13.0
30	---	---	---	5.0	4.5	4.5	8.0	8.0	8.0	13.5	13.0	13.0
31	---	---	---	6.0	5.0	5.5	---	---	---	14.0	13.0	13.0
MONTH	3.5	1.0	2.0	6.0	3.0	4.0	9.5	5.0	7.5	14.5	8.0	11.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.0	13.5	17.0	16.5	17.0	20.5	19.0	20.0	19.5	19.0	19.5
2	14.5	13.5	13.5	17.5	16.5	17.0	20.5	19.0	19.5	20.0	19.0	19.5
3	14.0	13.0	13.5	17.5	16.5	17.0	21.0	19.0	20.0	20.0	19.0	19.5
4	14.0	13.5	14.0	18.0	16.5	17.0	21.5	19.0	20.0	20.0	19.0	19.5
5	14.5	13.5	14.0	18.0	16.5	17.0	20.5	19.0	20.0	19.5	19.0	19.5
6	14.0	13.5	13.5	17.5	16.5	17.0	20.5	19.0	20.0	19.5	18.5	19.0
7	14.0	13.5	14.0	18.0	17.5	17.5	20.0	19.5	20.0	19.5	18.0	18.5
8	15.0	13.5	14.0	18.5	17.5	18.0	20.0	19.0	19.5	19.0	18.0	18.5
9	15.0	13.5	14.0	19.0	18.0	18.5	20.0	18.5	19.5	19.0	18.0	18.5
10	15.0	14.0	14.5	19.5	18.0	18.5	19.5	18.5	19.0	19.5	18.0	18.5
11	15.0	14.0	14.5	19.0	18.0	19.0	20.0	18.5	19.0	18.5	18.0	18.5
12	15.0	14.5	15.0	19.5	18.5	19.0	20.0	18.5	19.0	18.5	17.5	18.0
13	15.0	14.5	14.5	20.0	18.5	19.0	20.0	19.0	19.5	18.5	18.0	18.0
14	15.0	14.5	14.5	20.5	18.5	19.5	20.0	19.0	19.5	19.0	18.0	18.5
15	15.5	14.5	15.0	20.0	19.0	19.5	19.5	19.0	19.5	19.5	17.5	18.0
16	15.5	15.0	15.5	19.5	19.0	19.5	19.5	18.5	19.0	18.0	17.5	17.5
17	16.0	15.0	15.5	19.5	19.0	19.0	20.0	19.0	19.5	18.0	17.5	17.5
18	16.0	15.0	15.5	20.0	19.0	19.5	20.0	19.0	19.5	18.0	17.0	17.5
19	16.0	15.5	16.0	20.5	19.0	19.5	19.5	18.5	19.0	18.5	17.0	17.5
20	16.5	15.5	16.0	21.0	19.0	20.0	18.5	17.5	18.5	18.0	17.0	17.5
21	16.5	16.0	16.0	21.0	19.5	20.0	19.0	17.5	18.0	18.0	17.0	17.5
22	17.0	16.0	16.0	20.0	19.5	20.0	19.0	17.5	18.5	18.0	17.0	17.5
23	16.5	15.5	16.0	20.5	19.5	20.0	20.0	18.0	19.0	17.5	17.0	17.5
24	16.0	15.0	15.5	20.0	19.5	19.5	20.0	19.0	19.0	18.0	17.0	17.5
25	16.0	15.5	15.5	20.0	19.0	19.5	20.5	19.0	19.5	18.0	17.5	18.0
26	16.5	15.5	16.0	20.0	19.0	19.5	19.5	19.0	19.5	18.0	17.5	17.5
27	16.5	16.0	16.5	20.5	19.0	19.5	19.5	19.0	19.5	18.0	17.0	17.5
28	17.0	16.0	16.5	21.0	19.0	20.0	20.0	18.5	19.5	17.5	17.0	17.5
29	17.0	16.0	16.5	20.5	19.5	20.0	20.5	19.0	19.5	17.5	17.0	17.0
30	17.5	16.5	17.0	20.5	19.5	20.0	20.0	18.5	19.5	17.5	16.5	17.0
31	---	---	---	20.5	19.5	20.0	20.5	18.5	19.5	---	---	---
MONTH	17.5	13.0	15.0	21.0	16.5	19.0	21.5	17.5	19.5	20.0	16.5	18.0
YEAR	21.5	1.0	11.0									

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA

(National stream quality accounting network station)

LOCATION.--Lat 46°38'34", long 119°43'54", in NW¼SE¼ sec.6, T.13 N., R.25 E., Grant County, Hydrologic Unit 17020016, at State Highway 24 Vernita Bridge crossing, 9.0 mi downstream from Priest Rapids Dam, and at mile 388.1.

DRAINAGE AREA.--96,000 mi², approximately.

PERIOD OF RECORD.--Water years 1962-63, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1974 to September 1980.

REMARKS.--October 1971 to September 1972, at site 6.4 mi upstream, published as 12472800 "below Priest Rapids Dam." Prior to October 1971 published as 12472800 "at Vernita Ferry."

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
NOV 14...	1330	75000	135	7.60	11.0	2.2	10.8	98	<1	1300	70	8
JAN 22...	1100	161000	138	7.40	2.5	0.7	14.8	108	K1	E13	75	6
MAR 26...	1045	119000	157	7.90	4.0	1.2	13.5	106	K1	K2	79	5
MAY 28...	1130	89000	129	8.10	13.5	2.4	11.4	111	K2	K2	65	4
JUL 29...	1145	55000	126	8.20	20.0	1.9	11.5	130	K1	--	62	7
SEP 30...	1150	114000	139	7.90	17.0	1.0	9.8	103	K10	200	62	--

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
NOV 14...	21	4.3	2.4	7	0.1	0.8	62	11	1.3	0.2	4.9	78
JAN 22...	22	4.8	2.2	6	0.1	0.8	69	13	2.1	0.1	5.1	72
MAR 26...	23	5.2	2.1	5	0.1	0.7	74	14	1.0	0.1	4.6	93
MAY 28...	19	4.2	2.4	7	0.1	0.6	61	15	1.2	0.1	6.0	73
JUL 29...	18	4.1	2.4	8	0.1	0.9	55	8.7	1.1	0.1	3.6	66
SEP 30...	18	4.1	2.2	7	0.1	0.9	63	10	1.2	0.1	4.1	78

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)
NOV 14...	83	0.11	15800	2	<0.01	<0.10	0.01	0.2	0.02	0.01	0.02	20
JAN 22...	92	0.1	31300	1	<0.01	<0.10	0.01	0.2	0.02	0.01	0.01	--
MAR 26...	95	0.13	29900	7	--	0.10	0.03	0.2	0.01	<0.01	<0.01	<10
MAY 28...	85	0.1	17500	1	<0.01	0.15	0.04	0.4	0.02	<0.01	<0.01	<10
JUL 29...	72	0.09	9800	2	<0.01	<0.10	0.04	0.4	0.02	0.02	0.03	<10
SEP 30...	78	0.11	24000	1	--	<0.10	0.04	0.4	0.03	0.02	0.02	--

E - Estimated value based on values reported by the Denver Central Laboratory.
K - Results based on colony count outside the acceptable range (non-ideal colony count).

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
NOV											
14...	<1	37	<0.5	<1	<1	<3	80	31	19	<4	4
JAN											
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
26...	<1	31	<0.5	<1	<1	<3	2	7	1	6	4
MAY											
28...	<1	32	<0.5	<1	<1	<3	44	11	<1	<4	1
JUL											
29...	<1	32	<0.5	<1	1	<3	20	6	1	<4	1
SEP											
30...	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
NOV											
14...	<0.1	<10	<1	<1	<1	110	<6	17	5.1	2	405
JAN											
22...	--	--	--	--	--	--	--	--	--	1	435
MAR											
26...	<0.1	<10	<1	<1	<1	110	<6	11	2.3	4	1290
MAY											
28...	<0.1	<10	3	<1	<1	80	<6	7	4.0	2	481
JUL											
29...	<0.1	<10	<1	<1	<1	79	<6	8	4.6	4	594
SEP											
30...	--	--	--	--	--	--	--	--	--	3	923

12473520 COLUMBIA RIVER AT RICHLAND, WA

LOCATION.--Lat 46°18'46", long 119°15'28", in NW¼NW¼ sec.36, T.10 N., R.28 E., Benton County, Hydrologic Unit 17020016, at city of Richland pumping plant, 4.8 mi upstream from Yakima River, and at mile 340.2.

DRAINAGE AREA.--96,900 mi², approximately.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: July 1974 to current year. Unpublished records of stage at site 2.3 miles downstream are available in files of the Geological Survey, and U.S. Army Corps of Engineers.

INSTRUMENTATION.--Water-temperature recorder with probe located at city of Richland pumping-plant pier near right bank from July 1974 until January 1977. Since January 1977, recorder probe located 200 ft streamward from plant.

REMARKS.--Equipment malfunction Nov. 12 to Dec. 4. Water temperatures as recorded for the period July 1974 to January 1977 did not represent mean stream temperatures (see previous state reports for correlation between thermal load measurements and recorded temperatures). Temperature probe, relocated January 1977, represents both horizontal and vertical cross section of the river.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.0°C July 21, Aug. 4, 5, 1985; minimum, 0.5°C Feb. 1-4, 1979, Feb. 4, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 22.0°C July 21, Aug. 4, 5; minimum, 0.5°C Feb. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV										
15...	1130	140	8.10	10.5	2.6	10.8	96	K5	E3600	71
MAR										
27...	1030	164	7.80	4.0	1.3	13.6	107	<1	K3	78
MAY										
29...	1015	127	8.00	13.0	2.9	11.4	110	K5	180	62
JUL										
30...	1030	125	8.30	20.5	1.6	9.9	113	K13	>400	60

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
NOV									
15...	9	21	4.5	62	2.3	79	6	<0.01	0.12
MAR									
27...	0	23	5.0	78	1.0	85	7	<0.01	0.10
MAY									
29...	0	18	4.2	62	1.1	72	5	<0.01	<0.10
JUL									
30...	--	17	4.2	66	1.1	68	6	<0.01	<0.10

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)
NOV									
15...	0.02	<0.2	0.03	0.02	<10	--	37	1.5	6
MAR									
27...	0.04	0.2	0.01	<0.01	<10	2	<3	1.0	5
MAY									
29...	0.04	0.3	0.02	<0.01	<10	--	11	4.5	4
JUL									
30...	0.04	0.4	0.02	<0.01	<10	--	5	6.1	7

E - Estimated value based on values reported by Denver Central Laboratory.
K - Results based on colony count outside the acceptable range (non-ideal colony count).

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12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.5	17.0	17.0	11.5	11.0	11.5	---	---	---	3.5	3.0	3.0
2	17.5	17.0	17.0	11.5	11.0	11.0	---	---	---	3.5	3.0	3.0
3	17.0	17.0	17.0	11.0	11.0	11.0	---	---	---	3.5	3.0	3.0
4	17.0	16.5	16.5	11.5	11.0	11.5	---	---	---	3.5	3.0	3.0
5	16.5	16.5	16.5	11.5	11.5	11.5	7.0	7.0	7.0	3.0	3.0	3.0
6	17.0	16.5	16.5	11.5	11.0	11.5	7.0	7.0	7.0	3.0	2.5	3.0
7	17.0	16.5	17.0	11.0	10.5	11.0	7.0	7.0	7.0	3.0	2.5	3.0
8	17.0	17.0	17.0	11.0	10.5	11.0	7.0	6.5	7.0	3.0	3.0	3.0
9	17.0	17.0	17.0	11.0	11.0	11.0	7.0	6.5	6.5	3.0	3.0	3.0
10	17.0	16.5	16.5	11.0	11.0	11.0	7.0	6.5	6.5	3.0	3.0	3.0
11	16.5	16.0	16.0	11.0	11.0	11.0	6.5	6.0	6.5	3.5	3.0	3.0
12	15.5	15.0	15.5	---	---	---	6.5	6.0	6.5	3.5	3.0	3.0
13	15.5	15.0	15.0	---	---	---	6.0	6.0	6.0	3.5	3.0	3.0
14	15.5	15.0	15.0	---	---	---	6.5	6.0	6.0	3.0	3.0	3.0
15	15.0	14.5	15.0	---	---	---	6.5	6.0	6.0	3.0	3.0	3.0
16	15.0	14.5	15.0	---	---	---	6.0	6.0	6.0	3.0	3.0	3.0
17	15.0	14.5	14.5	---	---	---	6.0	5.0	5.5	3.0	3.0	3.0
18	14.5	14.0	14.0	---	---	---	5.0	5.0	5.0	3.0	2.5	2.5
19	14.0	14.0	14.0	---	---	---	5.0	4.5	5.0	2.5	2.5	2.5
20	14.0	13.5	13.5	---	---	---	4.5	4.5	4.5	2.5	2.5	2.5
21	14.0	13.5	13.5	---	---	---	4.5	4.5	4.5	7.5	2.5	2.5
22	13.5	13.0	13.5	---	---	---	5.0	4.5	4.5	2.5	2.5	2.5
23	13.5	13.0	13.5	---	---	---	5.0	5.0	5.0	2.5	2.5	2.5
24	14.0	13.0	13.5	---	---	---	5.0	5.0	5.0	2.5	2.5	2.5
25	13.5	13.0	13.5	---	---	---	5.0	5.0	5.0	2.5	2.5	2.5
26	13.0	12.5	13.0	---	---	---	5.0	5.0	5.0	2.5	2.5	2.5
27	12.5	12.0	12.0	---	---	---	5.0	4.5	4.5	2.5	2.5	2.5
28	12.5	12.0	12.0	---	---	---	4.5	4.5	4.5	2.5	2.5	2.5
29	12.5	12.0	12.0	---	---	---	4.5	4.0	4.0	2.5	2.0	2.5
30	12.0	11.0	11.5	---	---	---	4.0	4.0	4.0	2.5	2.0	2.0
31	11.5	11.0	11.5	---	---	---	3.5	3.5	3.5	2.0	2.0	2.0
MONTH	17.5	11.0	14.5	---	---	---	---	---	---	3.5	2.0	2.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAX
		FEBRUARY			MARCH			APRIL			MAY	
1	2.0	1.5	1.5	3.5	3.0	3.0	6.0	5.0	5.5	9.5	8.5	9.0
2	1.5	1.5	1.5	3.5	3.0	3.0	6.5	5.5	6.0	9.5	9.0	9.5
3	1.5	1.0	1.0	3.5	3.0	3.0	6.5	6.0	6.0	9.5	9.0	9.5
4	1.0	.5	1.0	3.5	3.0	3.0	6.5	5.5	6.0	9.5	9.0	9.5
5	1.0	1.0	1.0	3.5	3.0	3.0	7.0	6.0	6.5	9.5	9.0	9.5
6	1.0	1.0	1.0	3.5	3.0	3.0	7.5	7.0	7.0	9.5	9.0	9.5
7	1.0	1.0	1.0	3.5	3.0	3.0	7.5	7.0	7.5	10.0	9.0	9.5
8	1.0	1.0	1.0	3.5	3.0	3.0	8.0	7.5	8.0	10.5	9.0	10.0
9	1.0	1.0	1.0	3.5	3.0	3.5	8.5	7.5	8.0	10.5	9.5	10.0
10	1.5	1.0	1.0	3.5	3.0	3.5	9.0	8.0	8.5	10.5	9.5	10.0
11	2.0	1.5	1.5	3.5	3.0	3.5	9.0	8.5	8.5	10.5	9.5	10.0
12	2.0	1.5	2.0	4.0	3.0	3.5	9.5	8.5	9.0	10.5	9.5	10.0
13	2.0	1.5	2.0	4.0	3.5	4.0	9.5	8.5	9.0	11.0	9.5	10.5
14	2.0	1.5	2.0	4.0	3.5	3.5	10.0	9.0	9.5	11.0	10.0	10.5
15	2.0	1.5	2.0	4.0	3.5	4.0	9.5	9.0	9.5	11.5	10.5	11.0
16	2.0	1.5	2.0	4.0	3.5	4.0	9.0	8.5	8.5	12.0	10.5	11.5
17	2.5	2.0	2.0	4.5	4.0	4.0	8.5	8.0	8.5	12.5	11.0	11.5
18	2.5	2.0	2.5	4.5	4.0	4.5	8.5	8.0	8.5	13.0	12.0	12.5
19	2.5	2.0	2.5	4.5	4.0	4.0	8.5	8.0	8.0	13.0	12.0	12.5
20	2.5	2.0	2.5	5.0	4.0	4.5	8.0	7.5	8.0	13.0	12.5	13.0
21	2.5	2.0	2.5	4.5	4.0	4.5	8.5	7.5	8.0	13.5	12.0	13.0
22	3.0	2.0	2.5	4.5	4.0	4.5	8.5	8.0	8.0	13.5	12.5	13.0
23	3.0	2.5	3.0	4.5	4.0	4.5	8.5	8.0	8.0	14.0	13.0	13.5
24	3.5	3.0	3.0	5.0	4.5	4.5	8.0	7.5	8.0	14.0	13.0	13.5
25	3.0	2.5	3.0	5.0	4.5	4.5	8.0	7.5	8.0	14.5	13.0	14.0
26	3.0	2.5	3.0	4.5	4.0	4.5	8.0	7.0	7.5	14.5	14.0	14.0
27	3.5	2.5	3.0	4.5	4.0	4.5	8.5	7.5	8.0	14.5	14.0	14.0
28	3.5	3.0	3.0	5.0	4.0	4.5	9.0	8.0	8.5	14.0	13.5	14.0
29	---	---	---	4.5	4.5	4.5	9.0	8.0	8.5	14.0	13.0	13.5
30	---	---	---	5.5	4.5	5.0	9.0	8.0	8.5	14.0	13.0	13.5
31	---	---	---	5.5	5.0	5.0	---	---	---	14.0	13.0	13.5
MONTH	3.5	.5	2.0	5.5	3.0	4.5	10.0	5.0	8.0	14.5	8.5	11.5

12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.0	13.5	13.5	18.0	17.0	17.5	20.5	20.0	20.5	20.0	19.5	19.5
2	14.5	13.5	14.0	18.0	17.0	17.5	20.5	20.5	20.5	20.0	19.0	19.5
3	15.0	14.5	14.5	18.0	17.0	17.5	21.5	20.5	21.0	20.0	19.5	19.5
4	15.0	14.0	14.5	18.5	17.5	18.0	22.0	21.0	21.5	20.0	19.5	19.5
5	15.0	14.0	14.5	18.5	17.5	18.0	22.0	20.5	21.5	19.5	19.0	19.5
6	14.5	14.0	14.0	18.5	17.5	18.0	21.0	20.5	21.0	19.5	19.0	19.0
7	14.5	14.0	14.0	18.5	17.5	18.0	21.0	20.0	20.5	19.0	18.5	19.0
8	15.0	14.0	14.5	19.5	18.5	19.0	20.0	19.0	19.5	19.0	18.5	19.0
9	15.5	14.5	15.0	20.0	19.0	19.5	20.0	19.0	19.5	18.5	18.0	18.5
10	16.0	15.0	15.0	20.5	19.0	20.0	19.5	19.0	19.0	19.0	18.0	18.5
11	16.0	15.0	15.5	20.5	19.5	20.0	19.5	18.5	19.0	19.0	18.0	18.5
12	16.5	15.5	16.0	20.0	19.0	19.5	20.0	19.5	19.5	18.5	18.0	18.0
13	16.0	15.5	15.5	20.0	19.0	19.5	20.0	19.0	19.5	18.5	18.0	18.0
14	16.0	15.0	15.5	20.5	20.0	20.0	20.0	19.5	20.0	18.5	18.0	18.0
15	16.0	15.0	15.5	21.0	20.5	20.5	20.0	19.5	19.5	18.5	18.0	18.0
16	16.0	15.0	15.5	20.5	19.5	20.0	20.0	19.0	19.5	18.0	17.0	17.5
17	16.5	15.5	16.0	20.5	19.5	20.0	20.0	19.5	20.0	17.5	17.0	17.0
18	17.0	16.0	16.5	20.5	19.5	20.0	20.0	19.5	20.0	17.5	17.0	17.5
19	17.0	16.0	16.5	21.0	20.0	20.5	20.0	19.5	19.5	17.5	17.0	17.5
20	17.0	16.0	16.5	21.5	20.5	21.0	20.0	19.0	19.0	17.5	17.0	17.5
21	17.0	16.0	16.5	22.0	21.0	21.5	19.0	18.5	18.5	17.5	17.0	17.5
22	17.5	16.0	17.0	21.5	21.0	21.5	19.5	18.5	19.0	17.5	17.0	17.5
23	17.0	16.5	17.0	21.5	20.5	21.0	19.5	19.0	19.5	17.5	17.0	17.0
24	17.0	16.0	16.5	21.0	20.0	20.5	20.0	19.5	20.0	17.5	17.0	17.0
25	17.0	16.0	16.5	21.0	20.0	20.5	20.5	20.0	20.0	18.0	17.0	17.5
26	17.0	16.0	16.5	21.0	20.0	20.5	20.5	20.0	20.0	17.5	17.0	17.5
27	17.0	16.0	16.5	21.0	20.5	20.5	20.0	19.5	20.0	17.5	17.0	17.0
28	17.0	16.0	16.5	21.0	20.5	21.0	20.0	19.5	20.0	16.5	16.0	16.5
29	17.0	16.5	17.0	21.5	21.0	21.0	20.5	19.5	20.0	16.5	16.0	16.5
30	17.5	16.5	17.0	21.0	20.5	21.0	20.5	20.0	20.0	17.0	16.0	16.5
31	---	---	---	20.5	20.0	20.5	20.0	19.5	19.5	---	---	---
MONTH	17.5	13.5	15.5	22.0	17.0	20.0	22.0	18.5	20.0	20.0	16.0	18.0

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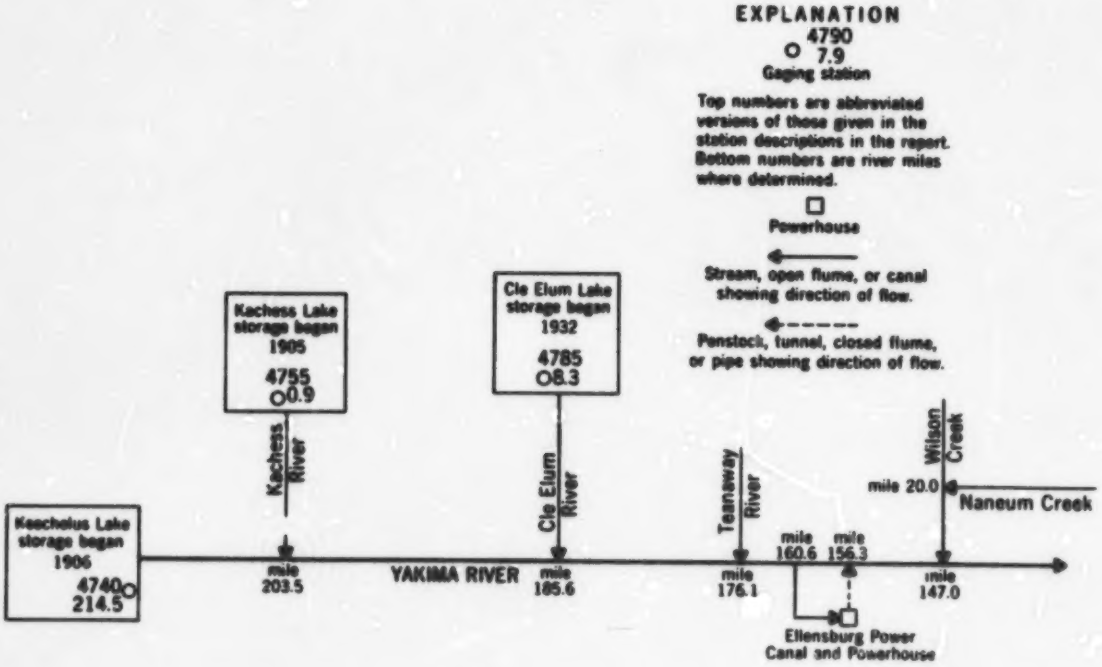
EXPLANATION
4790
7.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Kachess Lake storage began 1905
4755
0.9
Cle Elum Lake storage began 1932
4785
8.3
Kachess River
Cle Elum River
Teanaway River
Wilson Creek
mile 20.0
Naneum Creek
Keechelus Lake storage began 1906
4740
214.5
mile 203.5
YAKIMA RIVER
mile 185.6
mile 176.1
mile 160.6
mile 156.3
mile 147.0
Ellensburg Power Canal and Powerhouse

Figure 27.--Gaging stations in Yakima River basin between Keechelus Lake and Naneum Creek.

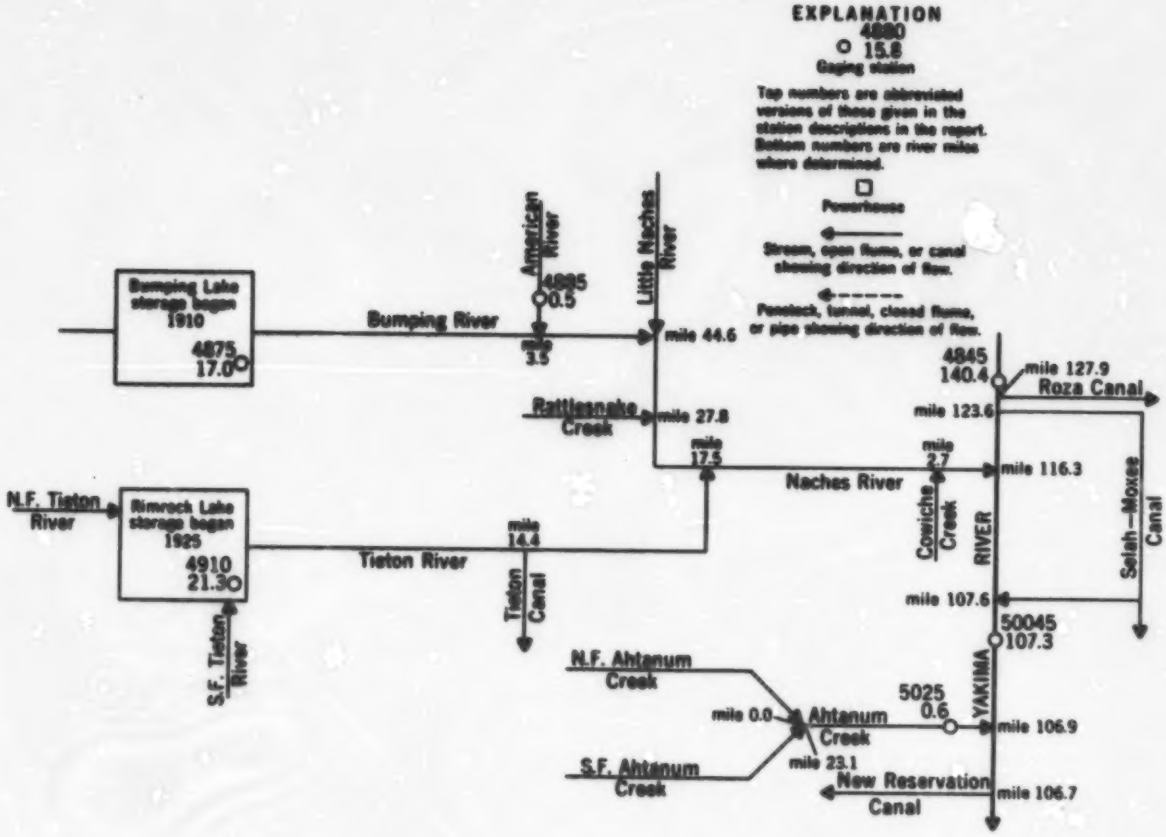
EXPLANATION
4880
15.8
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Bumping Lake storage began 1910
4875
17.0
Bumping River
American River
4885
0.5
mile 3.5
Little Naches River
mile 44.6
Rattlesnake Creek
mile 27.8
mile 17.5
Naches River
mile 2.7
Cowiche Creek
mile 116.3
N.F. Tieton River
Rimrock Lake storage began 1925
4910
21.3
Tieton River
mile 14.4
Tieton Canal
S.F. Tieton River
4845
140.4
mile 127.9
Roza Canal
mile 123.6
Selah—Moxee Canal
YAKIMA RIVER
mile 107.6
50045
107.3
N.F. Ahtanum Creek
mile 0.0
Ahtanum Creek
mile 23.1
5025
0.6
mile 106.9
S.F. Ahtanum Creek
New Reservation Canal
mile 106.7

Figure 28.—Gaging stations in Yakima River basin between Bumping Lake and Ahtanum Creek.

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12484500 YAKIMA RIVER AT UMTANUM, WA

LOCATION.--Lat 46°51'46", long 120°28'44", in SW¼NW¼ sec.20, T.16 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank at Umtanum railway siding, 0.5 mi upstream from Umtanum Creek, 4.2 mi upstream from McPherson Canyon, 10 mi south of Ellensburg, and at mile 140.4.

DRAINAGE AREA.--1,594 mi².

PERIOD OF RECORD.--August 1906 to current year.

REVISED RECORDS.--WSP 412: 1914. WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 28, 1911, nonrecording gage at approximately same site at various datums. Sept. 28, 1911, to Nov. 23, 1936, water-stage recorder at site about 300 ft upstream at datum 26.70 ft higher.

REMARKS.--Estimated daily discharges: Dec. 3-9, 18-24, Dec. 29 to Jan. 20, Jan. 29-31, Feb. 1-10. Records excellent except those for Dec. 3 to Feb. 10, which are good. Flow partly regulated by Keechelus, Kachess, and Cle Elum Lakes. Diversions upstream from station for irrigation of about 105,000 acres.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft³/s Nov. 15 or 16, 1906, gage height, 41.1 ft, from floodmarks, present datum; minimum recorded, 138 ft³/s Oct. 3, 1915, gage height, 2.86 ft, datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,760 ft³/s Apr. 15, gage height, 33.00 ft; minimum daily, 500 ft³/s Dec. 19, Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1840	801	711	640	580	1190	1650	2940	2290	4220	4620	3400
2	1790	839	666	600	560	1150	2400	3220	2500	4170	4640	3370
3	1770	839	620	600	540	1100	3200	3610	2570	4260	4590	3380
4	1620	883	650	600	500	1100	3300	3440	2540	4380	4510	3380
5	1430	926	620	630	530	1060	2940	2670	2410	4360	4450	3400
6	1450	947	620	640	560	1060	2820	2350	2230	4370	4320	3420
7	1420	869	660	650	600	1030	2730	2520	3000	4340	4460	3290
8	1410	810	680	640	650	969	2610	2590	3710	4350	4400	3210
9	1390	775	700	640	620	946	2940	3050	3580	4340	4320	2380
10	1430	826	713	630	600	929	3610	3200	3220	4420	4130	2140
11	1450	843	713	620	617	922	3870	3190	2760	4400	4090	2020
12	1470	881	712	610	635	942	4070	3150	2150	4480	4130	1860
13	1520	947	715	620	623	971	4100	3260	2180	4610	4030	1820
14	1590	1020	701	620	611	1020	4280	3350	2180	4640	4110	1780
15	1470	967	703	610	619	1080	4630	3310	2090	4560	4060	1710
16	1220	931	695	610	639	1170	4510	3390	2230	4440	4140	1650
17	1070	934	689	610	624	1260	4160	3790	2600	4450	4190	1660
18	991	980	630	620	605	1400	3380	3960	2490	4570	4160	1650
19	975	968	500	620	610	1560	2850	3480	2840	4620	4150	1620
20	896	942	520	640	619	1620	2570	3290	3350	4640	4190	1560
21	853	911	600	693	952	1550	2240	2760	3300	4640	4190	1500
22	833	866	700	677	1800	1460	1880	2490	3220	4610	4190	1470
23	820	840	900	673	1490	1390	1600	2440	3410	4610	4130	1430
24	807	823	950	667	1470	1320	1740	2470	3560	4630	4000	1390
25	804	791	972	665	1380	1200	2050	2430	3600	4630	3940	1380
26	939	769	864	658	1210	1150	2680	2220	3850	4580	3890	1380
27	898	790	864	651	1100	1160	2770	2050	3990	4530	3880	1330
28	865	780	801	647	1110	1100	3270	1880	4000	4580	3890	1290
29	844	790	760	620	---	1050	3230	1950	4170	4590	3690	1300
30	826	799	740	580	---	1030	2780	2280	4220	4530	3690	1290
31	833	---	680	580	---	1210	---	2380	---	4500	3460	---
TOTAL	37524	26087	22049	19561	22454	36099	90860	89110	90240	139050	128640	62460
MEAN	1210	870	711	631	802	1164	3029	2875	3008	4485	4150	2082
MAX	1840	1020	972	693	1800	1620	4630	3960	4220	4640	4640	3420
MIN	864	769	500	580	500	922	1600	1880	2090	4170	3460	1290
AC-FT	74430	51740	43730	38800	44540	71600	180200	176700	179000	275800	255200	123900

CAL YR 1984 TOTAL 981920 MEAN 2683 MAX 10600 MIN 500 AC-FT 1948000
WTR YR 1985 TOTAL 764134 MEAN 2094 MAX 4640 MIN 500 AC-FT 1516000

12488500 AMERICAN RIVER NEAR NILE, WA

LOCATION.--Lat 46°58'40", long 121°10'03", in SE¼NW¼ sec.12, T.17 N., R.13 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 300 ft upstream from Bumping Lake Road bridge, 4.9 mi downstream from Hell Creek, 16.0 mi northwest of Nile, and at mile 0.5.

DRAINAGE AREA.--78.9 mi².

PERIOD OF RECORD.--April 1909 to March 1912, July to September 1913, June to September 1914, June to September 1915, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 982: 1940-42. WSP 1216: Drainage area. WSP 1286: 1911.

GAGE.--Water-stage recorder. Datum of gage is 2,700 ft above Washington State Highway Department datum. Prior to Sept. 12, 1915, nonrecording gage at site 300 ft downstream at different datum. Oct. 12 to Dec. 7, 1939, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 29 to Dec. 9, Dec. 18-23, Dec. 29 to Jan. 16, Jan. 28 to Feb. 12. Records good except for periods of ice effect Nov. 29 to Dec. 9, Dec. 18-23, Dec. 29 to Jan. 16, Jan. 28 to Feb. 12, which are poor. No regulation or diversion.

AVERAGE DISCHARGE.--48 years (water years, 1910-11, 1940-85), 242 ft³/s, 41.65 in/yr, 175,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,250 ft³/s Dec. 26, 1980, gage height, 77.90 ft; minimum, 20 ft³/s Nov. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,910 ft³/s June 7, gage height, 75.82 ft; minimum daily, 27 ft³/s Feb. 4, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	56	46	37	31	50	77	249	510	215	64	39
2	46	53	42	35	29	49	96	315	507	209	65	40
3	46	64	39	34	28	48	122	419	537	213	63	39
4	45	70	37	32	27	50	126	416	576	205	62	38
5	47	74	35	31	28	48	137	378	587	192	60	37
6	46	69	39	33	29	47	153	350	564	173	58	39
7	46	66	43	34	30	46	164	334	1330	160	59	40
8	45	63	50	34	33	44	181	320	1330	154	64	40
9	47	62	60	33	34	44	239	303	828	148	60	45
10	51	64	65	32	35	44	309	293	656	141	58	53
11	57	64	61	31	36	45	359	275	591	132	57	51
12	64	75	60	30	38	48	406	257	631	123	55	47
13	92	90	58	31	39	50	431	251	637	116	54	48
14	83	90	59	33	40	53	484	247	563	109	53	47
15	74	81	65	36	41	57	551	253	550	104	51	45
16	68	75	60	39	41	63	577	317	526	100	50	44
17	64	70	57	40	39	71	548	498	475	96	49	46
18	61	68	40	40	40	79	476	693	486	93	48	43
19	57	66	35	41	40	89	400	861	525	89	47	42
20	55	65	35	42	40	94	343	904	532	86	46	41
21	53	64	36	43	41	93	300	871	477	83	46	40
22	51	61	37	43	43	91	265	881	414	80	44	38
23	50	62	52	42	44	89	241	907	363	78	43	38
24	51	62	55	42	46	85	216	904	300	75	43	37
25	61	60	51	41	45	81	194	933	275	72	42	37
26	75	57	50	40	45	79	181	798	268	71	41	36
27	70	56	50	38	45	77	185	722	277	69	41	35
28	68	54	49	36	48	72	230	679	271	67	40	35
29	64	52	47	35	---	70	226	607	290	65	40	34
30	62	49	45	33	---	69	228	547	236	64	39	34
31	58	---	40	32	---	71	---	518	---	64	39	---
TOTAL	1805	1962	1498	1123	1055	1996	8455	16390	16081	3646	1581	1228
MEAN	58.2	65.4	48.3	36.2	37.7	64.4	282	529	536	118	51.0	40.9
MAX	92	90	65	43	48	94	577	994	1330	215	65	53
MIN	45	49	35	30	27	44	77	247	236	64	39	34
CFSM	.74	.83	.61	.46	.48	.82	3.57	6.70	6.79	1.50	.65	.52
IN.	.85	.93	.71	.53	.50	.94	3.99	7.73	7.58	1.72	.75	.58
AC-FT	3580	3890	2970	2230	2090	3960	16770	32510	31900	7230	3140	2440

CAL YR 1984 TOTAL 82366 MEAN 225 MAX 1000 MIN 35 CFSM 2.85 IN. 38.63 AC-FT 163400
WTR YR 1985 TOTAL 56820 MEAN 156 MAX 1330 MIN 27 CFSM 1.98 IN. 26.79 AC-FT 112700

12474000 KEECHELUS LAKE.--Lat 47°19'21", long 121°20'18", in SE¼NE¼ sec.12, T.21 N., R.11 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, at headgate tower of outlet at dam on Yakima River, 3.0 mi northwest of Martin, 10 mi northwest of Easton, and at mile 214.5. DRAINAGE AREA.--54.7 mi^2. PERIOD OF RECORD.--January 1906 to current year. GAGE.--water-stage recorder and low-water staff gages. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Mar. 24, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earthfill dam completed in 1917; storage began behind crib dam Jan. 12, 1906, behind present dam Aug. 19, 1914. Initial filling of present reservoir June 15, 1920. Usable capacity, 157,800 acre-ft between elevations 2,425.00 ft, invert of gate sill, and 2,517.00 ft, spillway crest. Spillway raised 2 ft Sept. 12, 1952. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,940 acre-ft June 5, 1969, elevation, 2,518.23 ft; minimum observed, 448 acre-ft Sept. 6, 12, 13, 1906 (original crib dam); minimum elevation observed, 2,428.30 ft Sept. 20, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 158,540 acre-ft June 7, elevation, 2,517.30 ft; minimum, 11,360 acre-ft Sept. 30, elevation, 2,434.02 ft.

12475500 KACHESS LAKE.--Lat 47°15'53", long 121°12'16", in SW¼SW¼ sec.34, T.21 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on outlet gate tower at dam on Kachess River, 2.4 mi northwest of Easton. DRAINAGE AREA.--63.6 mi^2. PERIOD OF RECORD.--September 1905 to current year. GAGE.--water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Oct. 28, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earthfill dam completed in 1912. Original crib dam capacity, 21,000 acre-ft, used Sept. 20, 1905, to June 30, 1911. Storage behind present dam began June 30, 1911. Usable capacity, 239,000 acre-ft between elevations 2,192.75 ft, invert of gate sill, and 2,262.00 ft, top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 244,800 acre-ft May 9, 1957, elevation, 2,263.29 ft; minimum observed, 525 acre-ft Sept. 14, 15, 1910 (original crib dam); minimum elevation observed, 2,197.73 ft Sept. 25, 27, 1915.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 237,660 acre-ft June 20, elevation, 2,261.71 ft; minimum, 59,890 acre-ft Sept. 30, elevation, 2,214.19 ft.

12478500 CLE ELUM LAKE.--Lat 47°14'44", long 121°04'24", in NE¼NE¼ sec.10, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at dam on Cle Elum River at outlet of Cle Elum Lake, 4.0 mi northwest of Roslyn, and at mile 8.3. DRAINAGE AREA.--203 mi^2. PERIOD OF RECORD.--May 1906 to current year. GAGE.--water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Mar. 6, 1968, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earthfill dam completed in 1933; storage began behind present dam Feb. 26, 1932. Usable capacity, 436,900 acre-ft between elevations 2,110.00 ft, invert of gate sill, and 2,240.00 ft, top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 448,520 acre-ft May 8, 9, 1957, elevation, 2,241.98 ft; minimum observed, 2,380 acre-ft Aug. 31, 1906; minimum elevation observed, 2,114.35 ft Oct. 14, 1932. Storage was uncontrolled Oct. 3, 1931, to Feb. 26, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 418,290 acre-ft June 18, elevation, 2,236.09 ft; minimum, 44,980 acre-ft Sept. 30, elevation, 2,131.86 ft.

12487500 BUMPING LAKE.--Lat 46°52'25", long 121°17'57", in SW¼ sec.14 (unsurveyed), T.16 N., R.12 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, at outlet of dam on Bumping River, 2.2 mi southwest of Goose Prairie, 10 mi southwest of town of American River, 19 mi west of Nile, and at mile 17.0. DRAINAGE AREA.--69.3 mi^2. PERIOD OF RECORD.--June to July 1906, April 1909 to current year. GAGE.--water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Nov. 23, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earthfill dam completed in 1910; storage began Nov. 3, 1910. Usable capacity, 33,700 acre-ft between elevations 3,389.00 ft, invert of gate sill, and 3,426.00 ft, spillway crest. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,840 acre-ft June 21, 22, 1925, elevation, 3,430.55 ft; minimum observed, 1,130 acre-ft Feb. 5-9, 1949, elevation, 3,390.80 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 35,500 acre-ft June 7, elevation, 3,427.36 ft; minimum, 3,820 acre-ft Mar. 24, elevation, 3,394.95 ft.

12491000 RIMROCK LAKE.--Lat 46°39'23", long 121°07'43", in NE¼SW¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on upstream spillway pier at Tieton dam on Tieton River at Rimrock, 0.6 mi upstream from Wildcat Creek, 7.1 mi upstream from headworks on Tieton Canal, 21 mi west of Naches, and at mile 21.3. DRAINAGE AREA.--187 mi^2. PERIOD OF RECORD.--April 1925 to current year. Prior to October 1959, published as Tieton Reservoir. GAGE.--water-stage recorder and low-water staff gages. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to Mar. 14, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam completed in 1925; storage began Apr. 27, 1925. Usable capacity, 198,000 acre-ft between elevations 2,766.00 ft, invert of tunnel entrance, and 2,926.00 ft, crest of spillway gates. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 201,630 acre-ft June 18, 1974, elevation, 2,927.43 ft; minimum observed, 30 acre-ft Oct. 19, 20, 1979, elevation, 2,766.25 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 198,400 acre-ft July 6, elevation, 2,926.16 ft; minimum, 84,040 acre-ft Mar. 1, elevation, 2,870.10 ft.

RESERVOIRS IN YAKIMA RIVER BASIN, WA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
	12474000 KEECHELUS LAKE			12475500 KACHESS LAKE		
Sept. 30	2,477.90	73,160	—	2,235.68	129,310	—
Oct. 31	2,472.36	64,480	-8,680	2,234.36	124,400	-4,910
Nov. 30	2,481.16	79,400	+14,920	2,237.47	136,050	+11,650
Dec. 31	2,483.81	84,210	+4,810	2,239.80	144,970	+8,920
CAL YR 1984	—	—	-14,570	—	—	-2,990
Jan. 31	2,483.34	83,350	-860	2,240.83	148,980	+4,010
Feb. 28	2,483.40	83,460	+110	2,242.20	154,360	+5,380
Mar. 31	2,487.05	90,320	+6,860	2,244.51	163,610	+9,250
Apr. 30	2,504.33	126,870	+36,550	2,253.35	200,690	+37,080
May 31	2,515.51	153,980	+27,110	2,261.49	236,670	+35,980
June 30	2,511.83	144,770	-9,210	2,260.96	234,280	-2,390
July 31	2,486.16	88,610	-56,160	2,249.93	186,070	-48,210
Aug. 31	2,459.89	45,840	-42,770	2,228.49	96,140	-89,930
Sept. 30	2,434.02	11,360	-34,480	2,214.19	59,890	-36,250
WTR YR 1985	—	—	-61,800	—	—	-69,420
	12478500 CLE ELUM LAKE			12487500 BUMPING LAKE		
Sept. 30	2,166.36	140,660	—	3,412.31	17,870	—
Oct. 31	2,168.00	146,010	+5,350	3,395.98	4,240	-13,630
Nov. 30	2,173.41	164,110	+18,100	3,394.98	3,840	-400
Dec. 31	2,176.40	174,390	+10,280	3,394.96	3,830	-10
CAL YR 1984	—	—	-31,260	—	—	-30
Jan. 31	2,176.81	175,810	+1,420	3,394.96	3,830	0
Feb. 28	2,177.76	179,120	+3,310	3,394.96	3,830	0
Mar. 31	2,180.91	190,250	+11,130	3,394.95	3,820	-10
Apr. 30	2,199.06	258,460	+68,210	3,411.63	17,190	+13,370
May 31	2,221.63	352,450	+93,990	3,425.31	32,820	+15,630
June 30	2,227.40	378,130	+25,680	3,422.52	29,300	-3,520
July 31	2,185.44	206,630	-171,500	3,422.83	29,690	+390
Aug. 31	2,141.91	69,040	-137,590	3,420.23	26,550	-3,140
Sept. 30	2,131.86	44,980	-24,060	3,404.86	11,060	-15,490
WTR YR 1985	—	—	-95,680	—	—	-6,810
	12491000 RIMROCK LAKE					
Sept. 30	2,880.94	101,640	—			
Oct. 31	2,875.02	92,120	-9,520			
Nov. 30	2,878.73	98,470	+6,350			
Dec. 31	2,879.40	99,630	+1,160			
CAL YR 1984	—	—	-24,230			
Jan. 31	2,875.03	92,140	-7,490			
Feb. 28	2,870.22	84,230	-7,910			
Mar. 31	2,875.37	92,720	+8,490			
Apr. 30	2,888.05	115,340	+22,620			
May 31	2,908.61	157,170	+41,830			
June 30	2,925.80	197,490	+40,320			
July 31	2,921.67	187,270	-10,220			
Aug. 31	2,909.28	158,460	-28,810			
Sept. 30	2,880.02	100,720	-57,740			
WTR YR 1985	—	—	-920			

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA
(National stream quality accounting network station)

LOCATION.--Lat 46°32'04", long 120°27'58", in NW¼NE¼ sec.17, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 2,200 ft upstream from Ahtanum Creek, 0.8 mi upstream from Wapato Dam, 1.4 mi southeast of Union Gap, and at about mile 107.3.

DRAINAGE AREA.--3,479 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft above National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations above National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1967, at site 1,200 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 17-31, Jan. 1-5, Feb. 2-6. Water-discharge records good. Diversions upstream from station for irrigation of about 212,000 acres. Flow partly regulated by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. Records at this site plus those for Ahtanum Creek at Union Gap (station 12502500) are equivalent to discontinued station 12503000, Yakima River at Union Gap.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,300 ft³/s Dec. 3, 1977, elevation, 949.55 ft; minimum daily, 300 ft³/s Jan. 1, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,330 ft³/s June 8, elevation, 942.63 ft; maximum elevation, 944.53 ft Dec. 19, backwater from ice; minimum discharge, 874 ft³/s Mar. 4, elevation, 937.50 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2610	1700	1390	1150	1240	2480	1860	3340	3640	3860	3710	2920
2	2430	1670	1300	1150	1150	1990	2730	3730	3700	3710	3780	3050
3	2240	1710	1120	1150	1100	1840	3990	4650	3910	3640	3720	2930
4	1970	1740	1070	1100	1000	1550	4660	4980	3930	3740	3650	2960
5	1670	1770	1110	1250	1030	1700	4200	3990	4150	3760	3580	3020
6	1830	1810	1140	1390	1200	1680	4120	3190	4330	3720	3420	3080
7	1840	1720	1300	1410	1300	1650	4110	3230	5990	3620	3530	3100
8	1830	1680	1470	1360	1310	1560	3940	3090	8950	3670	3580	2980
9	1810	1640	1460	1260	1310	1500	4360	3450	7790	3510	3540	3360
10	1820	1710	1450	1220	1300	1470	5550	3680	6350	3590	3360	3610
11	1900	1720	1370	1230	1310	1460	6340	3620	5400	3570	3290	3680
12	1790	1780	1420	1280	1510	1480	6540	3430	4460	3700	3330	3320
13	1950	1890	1350	1290	1450	1510	6630	3510	4200	3820	3170	3200
14	2090	1900	1400	1320	1360	1600	7050	3700	4080	3920	3250	3030
15	2120	1830	1430	1310	1370	1700	7840	3920	3680	3750	3230	2950
16	2190	1730	1390	1340	1430	1810	7920	3840	3520	3570	3260	2880
17	2110	1710	1300	1340	1360	1960	7320	4830	3670	3560	3360	2760
18	1930	1720	1150	1290	1320	2140	6040	6000	3430	3680	3350	2740
19	2140	1710	1050	1330	1320	2430	4850	6380	3650	3700	3340	2600
20	2490	1690	900	1370	1270	2480	4040	6300	4070	3750	3370	2560
21	2170	1650	1000	1420	1160	2370	3380	5570	3950	3770	3430	2500
22	2070	1570	1250	1410	2610	2190	2790	5860	3680	3680	3430	2550
23	1930	1540	1600	1410	2850	2080	2230	6410	3800	3620	3430	2600
24	1760	1540	1800	1390	2490	2000	2320	6530	3850	3660	3320	2560
25	1710	1480	1700	1380	2520	1800	2600	6390	3640	3660	3280	2530
26	1710	1440	1500	1360	2160	1590	3480	5590	3890	3660	3160	2560
27	1850	1490	1450	1340	2000	1570	3890	5150	3920	3520	3190	2530
28	1830	1450	1400	1320	1990	1460	4300	4550	3790	3550	3230	2440
29	1800	1470	1350	1300	---	1350	4250	3960	3910	3580	3120	2450
30	1760	1500	1300	1230	---	1300	3390	3850	4000	3530	3190	2420
31	1740	---	1250	1210	---	1460	---	3910	---	3510	3020	---
TOTAL	61090	49960	41170	40310	43420	55160	136720	140630	131330	113580	104640	85870
MEAN	1971	1665	1328	1300	1551	1779	4557	4536	4378	3664	3375	2862
MAX	2610	1900	1800	1420	2850	2480	7920	6530	8950	3920	3780	3680
MIN	1670	1440	900	1100	1000	1300	1860	3090	3430	3510	3020	2420
AC-FT	121200	99100	81660	79950	86120	109400	271200	278900	260500	225300	207600	170300

CAL YR 1984 TOTAL 1447610 MEAN 3955 MAX 17200 MIN 900 AC-FT 2871000
WTR YR 1985 TOTAL 1003880 MEAN 2750 MAX 8950 MIN 900 AC-FT 1991000

BEST COPY AVAILABLE

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water-quality data obtained at the cableway 0.2 miles downstream from gage and 0.7 miles downstream from Moxee Drain.

PERIOD OF RECORD.--Water years 1969, 1971, March 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: March 1981 to December 1981.

REMARKS.--Water-quality records affected by Moxee Drain during the summer months when it accounts for about three percent of the flow of the Yakima River at the entry point of Moxee Creek, about 0.7 miles above the sampling point. Moxee Drain contributes significant suspended sediment load and nutrients to the river, during the irrigation season.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV 08...	1040	1640	158	7.20	6.5	2.3	12.5	106	K67	--	64
JAN 08...	1025	1370	153	7.40	0.0	2.5	12.9	91	54	250	61
MAR 13...	1325	1530	175	7.70	8.0	2.9	11.9	104	K12	65	69
MAY 08...	1245	2980	110	7.80	11.0	4.6	11.2	105	54	120	48
JUL 15...	1145	3760	102	7.40	19.0	7.3	8.7	97	170	170	40
SEP 17...	1240	2750	133	8.20	14.0	2.0	12.6	128	120	290	48

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 08...	--	16	5.9	9.6	24	0.5	1.5	74	8.2	5.4	0.1
JAN 08...	--	15	5.7	8.9	24	0.5	1.4	79	7.5	4.6	0.1
MAR 13...	--	17	6.5	11	24	0.6	6.4	81	9.1	6.4	<0.1
MAY 08...	1	13	3.8	6.0	21	0.4	1.3	47	5.7	2.6	0.1
JUL 15...	--	9.7	3.8	4.2	18	0.3	1.0	54	4.0	1.7	<0.1
SEP 17...	--	12	4.4	7.2	24	0.5	1.7	60	7.2	3.6	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV 08...	18	98	110	0.13	434	0.20	0.06	<0.2	0.06	0.04	0.05
JAN 08...	19	76	110	0.1	281	0.38	0.14	0.4	0.06	0.05	0.04
MAR 13...	19	107	120	0.15	442	0.26	0.15	0.4	0.05	0.06	0.04
MAY 08...	17	76	78	0.1	611	0.11	0.15	0.6	0.08	0.06	0.04
JUL 15...	12	57	69	0.08	579	0.43	0.04	0.4	0.09	0.04	0.04
SEP 17...	18	83	90	0.11	616	0.21	0.06	0.3	0.07	0.06	0.06

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV											
08...	10	<1	20	<0.5	<1	<1	<3	100	33	15	<4
JAN											
08...	--	--	--	--	--	--	--	--	--	--	--
MAR											
13...	140	<1	20	<0.5	<1	<1	<3	4	200	6	<4
MAY											
08...	20	<1	16	<0.5	<1	<1	<3	2	35	1	<4
JUL											
15...	<10	<1	11	<0.5	<1	<1	<3	1	19	<1	<4
SEP											
17...	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDIMENT, SUS-PENDED (MG/L)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY)
NOV											
08...	11	<0.1	<10	<1	<1	<1	74	<6	17	5	22
JAN											
08...	--	--	--	--	--	--	--	--	--	7	26
MAR											
13...	18	<0.1	<10	3	<1	<1	75	<6	<3	10	41
MAY											
08...	7	<0.1	<10	2	<1	<1	50	<6	13	16	129
JUL											
15...	8	<0.1	<10	2	<1	<1	44	<6	6	33	335
SEP											
17...	--	--	--	--	--	--	--	--	--	11	82

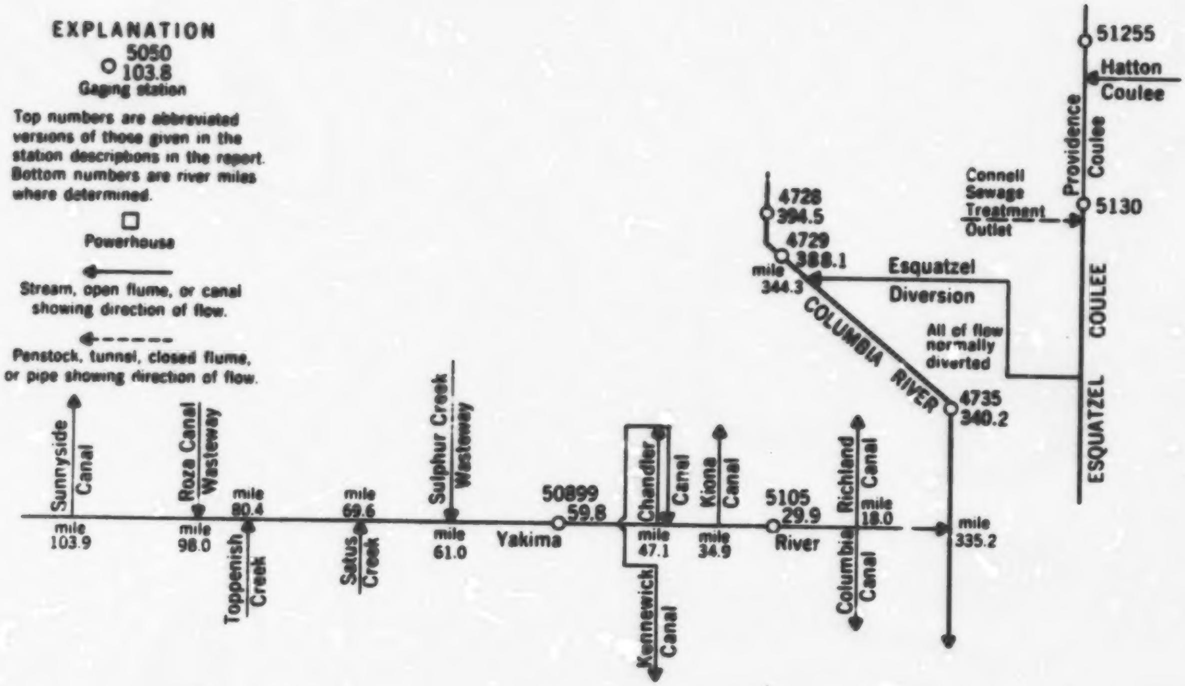
EXPLANATION
5050
103.8
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
51255
Hatton Coulee
Providence Coulee
Connell Sewage Treatment Outlet
5130
4728
394.5
4729
388.1
mile 344.3
Esquatzel Diversion
COLUMBIA RIVER
All of flow normally diverted
ESQUATZEL COULEE
4735
340.2
Sunnyside Canal
mile 103.9
Roza Canal Wasteway
mile 98.0
mile 80.4
Toppenish Creek
mile 69.6
Satus Creek
Sulphur Creek Wasteway
mile 61.0
Yakima
50899
59.8
Chandler Canal
mile 47.1
Kennewick Canal
Kiona Canal
mile 34.9
5105
29.9
River
Richland Canal
mile 18.0
Columbia Canal
mile 335.2

Figure 29.--Gaging stations in Yakima River basin downstream from Sunnyside Canal and in Esquatzel Coulee..

12502500 AHTANUM CREEK AT UNION GAP, WA

LOCATION.--Lat 46°32'08", long 120°28'20", in SE¼SW¼ sec.8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on right downstream wingwall of Union Pacific Railway bridge at Union Gap, 1.0 mi south of town of Union Gap, and at mile 0.6.

DRAINAGE AREA.--173 mi^2.

PERIOD OF RECORD.--May to November 1904, August 1907 to July 1908, March to October 1910, April 1911 to September 1914, May 1951 to April 1953, August 1960 to current year. Published as "near Yakima" 1904, 1907-08, 1910-12. Records for water years 1913-14 are published in WSP 1286.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 940 ft, from topographic map. Prior to Sept. 30, 1914, nonrecording gage at approximately same site at various datums. May 12, 1951 to Sept. 30, 1972, water-stage recorder at present site at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Extreme high flows may include transbasin flow from Wide Hollow Creek. Diversions and ground-water withdrawals for irrigation of about 9,000 acres upstream from station. Return from transbasin irrigation flows contribute to base flow. Chemical data (irrigation seasons only) for 1975-76 water years. Water temperature records March to December 1981.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft^3/s Jan. 16, 1974, gage height, 10.36 ft; no flow many days during September and October 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 212 ft^3/s June 8, gage height, 4.68 ft; minimum, 3.7 ft^3/s July 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	24	29	31	33	65	61	68	91	15	13	14
2	31	29	25	30	31	63	65	69	90	14	16	15
3	30	35	23	26	27	60	69	88	85	12	15	15
4	27	33	22	26	23	61	88	92	84	9.5	13	13
5	24	31	21	30	25	60	85	77	85	9.0	11	13
6	26	28	21	31	24	60	89	74	92	7.4	10	13
7	27	26	23	31	28	59	93	74	156	11	10	13
8	26	27	24	32	29	57	95	69	191	13	12	14
9	25	26	28	31	29	56	102	55	153	12	14	17
10	24	31	32	31	30	56	123	56	130	10	13	23
11	24	30	30	31	33	54	137	52	111	8.0	10	23
12	25	33	33	31	33	54	147	47	104	7.9	7.0	23
13	26	33	30	31	33	56	151	51	97	7.5	6.7	24
14	27	33	33	31	35	57	162	59	95	8.8	11	24
15	23	32	34	31	35	57	171	52	88	6.9	11	24
16	20	31	33	31	37	56	165	45	74	5.8	11	24
17	19	31	33	31	35	58	156	59	64	5.9	11	24
18	19	32	24	31	37	60	143	85	45	9.9	11	22
19	20	31	23	32	37	63	135	116	35	11	9.9	20
20	20	32	23	32	37	66	116	130	27	11	7.4	20
21	21	31	22	32	37	66	103	133	26	11	6.2	20
22	22	31	23	32	43	65	103	136	21	6.7	6.9	19
23	24	31	28	32	45	64	94	136	16	3.9	7.4	19
24	24	32	32	31	45	63	85	156	19	5.3	8.6	20
25	24	31	32	32	53	60	68	167	20	7.2	12	20
26	24	30	33	32	52	61	68	152	20	8.7	9.8	20
27	24	30	33	32	52	63	66	141	18	9.8	8.1	20
28	24	29	32	33	54	62	70	119	16	9.4	8.1	20
29	24	32	31	31	---	66	74	119	15	6.7	7.2	20
30	24	32	32	29	---	61	68	105	16	5.3	7.8	21
31	24	---	32	31	---	59	---	94	---	6.5	10	---
TOTAL	759	917	874	958	1012	1868	3152	2876	2084	276.1	315.1	577
MEAN	24.5	30.6	28.2	30.9	36.1	60.3	105	92.8	69.5	8.91	10.2	19.2
MAX	37	35	34	33	54	66	171	167	191	15	16	24
MIN	19	24	21	26	23	54	61	45	15	3.9	6.2	13
AC-FT	1510	1820	1730	1900	2010	3710	6250	5700	4130	548	625	1140

CAL YR 1984 TOTAL 31181.0 MEAN 85.2 MAX 268 MIN 9.0 AC-FT 61850
WTR YR 1985 TOTAL 15668.2 MEAN 42.9 MAX 191 MIN 3.9 AC-FT 31080

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12508990 YAKIMA RIVER AT MABTON, WA

LOCATION.--Lat 46°13'53", long 119°50'54", in SW¼SW¼ sec.30, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank under county highway bridge, at east boundary of Yakima Indian Reservation, 1.1 mi north of Mabton, and at mile 59.8.

DRAINAGE AREA.--5,359 mi².

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 643 ft, from topographic map. Prior to Oct. 1, 1976, at elevation 10 ft higher.

REMARKS.--Estimated daily discharges: Dec. 20, 21. Records good. Flow affected by storage in five reservoirs and by diversions upstream from station for irrigation upstream and downstream from station of about 424,000 acres and by return flow from irrigated area. Water temperatures March 1981 to February 1982.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft³/s Jan. 17, 1974, gage height, 25.30 ft present datum; minimum daily, 320 ft³/s Mar. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,030 ft³/s Apr. 16, gage height, 14.12 ft; minimum, 1,080 ft³/s July 24, gage height, 10.42 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2180	2390	2160	1920	1730	2730	2180	1750	2130	1740	1280	1660
2	2490	2410	2050	1730	1720	3030	2560	1690	2070	1670	1460	1670
3	2350	2440	1940	1710	1680	2680	3270	1920	2120	1500	1570	1770
4	2110	2490	1810	1660	1570	2590	4290	2750	2170	1410	1590	1700
5	1870	2480	1710	1650	1550	2360	4440	2760	2180	1450	1590	1650
6	1670	2460	1700	1830	1550	2410	4260	2120	2220	1460	1500	1660
7	1750	2460	1740	1860	1690	2400	4270	1610	2450	1440	1350	1770
8	1750	2380	1920	1870	1820	2350	4240	1520	4860	1390	1450	1820
9	1690	2320	2060	1840	1790	2280	4020	1380	6510	1330	1530	1870
10	1660	2330	2130	1770	1750	2240	4610	1620	5500	1200	1510	2370
11	1680	2400	2170	1740	1810	2210	5460	1750	4330	1180	1460	2590
12	1740	2520	2100	1740	2700	2190	5950	1760	3360	1180	1430	2550
13	1680	2660	2050	1780	2470	2210	6070	1710	2530	1270	1420	2430
14	1840	2740	2010	1800	2140	2230	6210	1730	2290	1410	1320	2400
15	2050	2620	2120	1810	2110	2310	6610	1790	2070	1520	1350	2320
16	2640	2500	2140	1800	2200	2420	6960	1870	1740	1370	1320	2280
17	2720	2390	2060	1820	2080	2530	6640	1890	1610	1220	1380	2250
18	3000	2390	1950	1810	1990	2670	5790	2700	1620	1190	1510	2160
19	2900	2380	1610	1780	1960	2820	4730	3510	1350	1240	1540	2120
20	3070	2400	1500	1820	1940	2720	3740	3750	1330	1280	1540	2050
21	3150	2370	1550	1850	1870	2560	3060	3580	1570	1350	1620	2010
22	2860	2300	1720	1880	2070	2580	2570	3160	1460	1360	1720	1950
23	2740	2230	2100	1880	3230	2820	1940	3600	1290	1210	1760	1950
24	2590	2210	2320	1870	3000	2820	1580	3870	1420	1130	1780	1980
25	2470	2180	2310	1860	3160	2710	1430	4150	1480	1170	1750	1970
26	2410	2140	2280	1850	2900	2500	1490	3920	1370	1170	1690	1900
27	2390	2140	2180	1830	2780	2280	2070	3520	1500	1190	1510	1910
28	2500	2170	2140	1810	2680	2180	2290	3080	1520	1140	1510	1900
29	2470	2150	2060	1810	---	2070	2700	2600	1440	1180	1710	1860
30	2420	2170	2060	1790	---	1980	2430	2280	1610	1210	1690	1890
31	2430	---	2010	1730	---	2000	---	2140	---	1170	1720	---
TOTAL	71270	71220	61660	55900	60020	75880	117860	77480	69100	40730	47560	60410
MEAN	2299	2374	1989	1803	2144	2448	3929	2499	2303	1314	1534	2014
MAX	3150	2740	2320	1920	3230	3030	6960	4150	6510	1740	1780	2590
MIN	1660	2140	1500	1650	1550	1980	1430	1380	1290	1130	1280	1650
AC-FT	141400	141300	122300	110900	119000	150500	233800	153700	137100	80790	94340	119800

CAL YR 1984 TOTAL 1381190 MEAN 3774 MAX 16600 MIN 1170 AC-FT 2740000
WTR YR 1985 TOTAL 809090 MEAN 2217 MAX 6960 MIN 1130 AC-FT 1605000

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12510500 YAKIMA RIVER AT KIONA, WA

(National stream quality accounting network station)

LOCATION.--Lat 46°15'13", long 119°28'37", in SE¼NE¼ sec.19, T.9 N., R.27 E., Benton County, Hydrologic Unit 17030003, on left bank just upstream from abandoned highway bridge pier at Kiona, 0.1 mi upstream from highway bridge, 3.6 mi downstream from Corral Canyon Creek, 5.0 mi downstream from intake of Kiona Canal, and at mile 29.9.

DRAINAGE AREA.--5,615 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1895 (gage heights only, fragmentary), August 1896 to March 1915, February 1933 to current year.

REVISED RECORDS.--WSP 214: 1905. WSP 1122: 1934(M). WSP 1216: 1949-50. WSP 1286: 1907(M), 1909, 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 434.41 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1915, nonrecording gages at approximately same site and datum. Feb. 6, 1933, to July 26, 1934, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 19-23, Dec. 31 to Jan. 6, Feb. 2-7. Water-discharge records excellent. Diversion upstream from station for irrigation of about 424,000 acres. Flow affected by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock lakes. The Kiona Canal bypasses station with a mean flow of approximately 23 ft³/s for irrigation of about 1,100 acres downstream from station. Diversion by the Kennewick Canal, which bypasses station, began in August 1956, and diverted 96,995 acre-ft during the current water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft³/s Dec. 23, 1933, gage height, 21.57 ft, from high-water marks; minimum observed, 105 ft³/s Sept. 11, 1906.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,260 ft³/s Apr. 16, gage height, 7.51 ft; minimum, 1,030 ft³/s July 11, 12, gage height, 2.89 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2430	2590	2390	2050	1910	2980	2290	2090	2260	1590	1190	1710
2	2620	2640	2300	2020	1800	3360	2580	1750	2240	1600	1390	1690
3	2650	2600	2180	1900	1750	2970	3340	1890	2220	1470	1590	1760
4	2410	2640	2050	1800	1700	2900	4400	2570	2320	1320	1660	1760
5	2130	2660	1940	1800	1650	2630	4940	3030	2320	1310	1710	1720
6	1870	2670	1880	1950	1700	2580	4640	2540	2380	1330	1660	1720
7	1810	2640	1910	2070	1750	2650	4630	1980	2500	1320	1520	1750
8	1920	2590	2040	2080	1900	2570	4610	1660	4050	1290	1420	1870
9	1820	2520	2210	2070	2040	2500	4260	1640	6720	1230	1580	1900
10	1780	2490	2290	1990	1990	2430	4680	1610	5990	1140	1620	2300
11	1780	2550	2410	1940	2030	2380	5560	1900	4740	1040	1610	2710
12	1810	2670	2310	1930	2980	2360	6240	1930	3740	1040	1530	2960
13	1830	2850	2280	1970	3080	2360	6400	1930	2760	1050	1450	2720
14	1800	2970	2210	1970	2640	2390	6460	1920	2310	1110	1340	2680
15	2100	2920	2270	2000	2580	2450	6800	1960	2150	1300	1250	2600
16	2760	2800	2360	2000	2670	2560	7150	2050	1870	1380	1260	2520
17	3100	2670	2280	1990	2510	2690	6870	1990	1650	1200	1250	2510
18	3420	2630	2050	2010	2340	2790	6150	2430	1560	1090	1340	2390
19	3300	2590	1750	1980	2250	2930	5190	3480	1450	1070	1440	2340
20	3450	2640	1550	2020	2230	2910	4130	3970	1200	1150	1440	2270
21	3580	2620	1500	2050	2180	2830	3380	3890	1330	1190	1460	2210
22	3280	2550	1700	2100	2120	2640	2860	3360	1470	1260	1580	2150
23	3100	2490	1900	2120	3440	2860	2400	3480	1300	1240	1640	2110
24	2920	2440	2480	2100	3710	2940	1850	3910	1240	1110	1700	2080
25	2770	2410	2580	2080	3510	2870	1570	4160	1380	1070	1720	2050
26	2660	2350	2530	2060	3460	2620	1590	4160	1330	1070	1690	2010
27	2620	2370	2480	2050	3140	2520	1910	3680	1310	1090	1580	1970
28	2670	2380	2410	2020	3020	2350	2380	3340	1410	1120	1510	1980
29	2670	2350	2280	2010	---	2350	2660	2820	1400	1090	1550	1940
30	2660	2380	2210	1990	---	2250	2700	2450	1390	1120	1760	1950
31	2540	---	2150	1940	---	2140	---	2230	---	1140	1740	---
TOTAL	78260	77630	66880	62060	68080	81760	124620	81800	69990	37530	47180	64330
MEAN	2525	2588	2157	2002	2431	2637	4154	2639	2333	1211	1522	2144
MAX	3580	2970	2580	2120	3710	3360	7150	4160	6720	1600	1760	2960
MIN	1780	2350	1500	1800	1650	2140	1570	1610	1200	1040	1190	1690
AC-FT	155200	154000	132700	123100	135000	162200	247200	162300	138800	74440	93580	127600

CAL YR 1984 TOTAL 1414980 MEAN 3866 MAX 16900 MIN 1200 AC-FT 2807000
WTR YR 1985 TOTAL 860120 MEAN 2356 MAX 7150 MIN 1040 AC-FT 1706000

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12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1952 to September 1960 (composite samples), October 1960 to September 1977.
WATER TEMPERATURES: December 1952 to September 1980, March 1981 to February 1982.
SUSPENDED SEDIMENT: June 1977 to October 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
NOV												
20...	1510	2660	263	8.00	7.0	4.0	12.5	104	K200	>10000	110	--
JAN												
21...	1050	2000	250	7.80	2.5	1.6	13.7	101	73	170	100	--
MAR												
11...	1100	2390	252	8.20	7.5	5.5	11.4	96	K28	K8	110	--
MAY												
01...	1015	2130	191	7.80	15.0	9.6	9.8	99	30	39	77	--
JUL												
10...	1030	1140	307	7.90	25.5	8.5	7.7	95	150	1200	120	--
SEP												
11...	1050	2690	289	8.10	16.5	19	9.1	96	420	740	110	--

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
NOV												
20...	28	10	16	23	0.7	2.8	120	16	7.1	0.2	24	159
JAN												
21...	26	9.3	15	24	0.7	2.4	114	16	7.5	0.2	24	168
MAR												
11...	26	10	16	24	0.7	2.4	118	18	7.4	0.2	24	151
MAY												
01...	20	6.6	10	21	0.5	2.1	86	12	4.1	0.1	19	126
JUL												
10...	30	10	17	24	0.7	3.2	133	18	6.3	0.2	25	174
SEP												
11...	29	10	16	23	0.7	3.5	125	18	7.0	0.2	24	168

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)
NOV											
20...	180	0.22	1140	12	1.20	0.03	0.6	0.08	0.07	0.05	20
JAN											
21...	170	0.23	907	2	1.20	0.08	0.3	0.08	0.06	0.06	--
MAR											
11...	180	0.21	974	19	0.96	0.05	0.5	0.10	0.07	0.07	20
MAY											
01...	130	0.17	725	44	0.60	0.02	0.6	0.12	0.05	0.04	<10
JUL											
10...	190	0.24	536	25	1.20	0.04	0.6	0.15	0.09	0.07	<10
SEP											
11...	180	0.23	1220	77	1.30	0.04	0.5	0.10	0.09	0.08	--

K - Results based on colony count outside the acceptable range (non-ideal colony count).

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
NOV											
20...	<1	27	<0.5	<1	<1	<3	6	21	4	5	26
JAN											
21...	--	--	--	--	--	--	--	--	--	--	--
MAR											
11...	<1	29	<0.5	<1	<1	<3	<1	20	<1	<4	46
MAY											
01...	1	18	<0.5	<1	<1	<3	2	15	<1	<4	8
JUL											
10...	2	30	<0.5	<1	<1	<3	1	<3	<1	5	3
SEP											
11...	--	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
20...	0.1	<10	<1	<1	<1	120	<6	10	16	115	--
JAN											
21...	--	--	--	--	--	--	--	--	6	32	--
MAR											
11...	<0.1	<10	<1	4	1	110	<6	<3	22	142	--
MAY											
01...	<0.1	<10	<1	<1	<1	87	<6	8	31	178	67
JUL											
10...	<0.1	<10	<1	<1	<1	130	<6	8	28	86	--
SEP											
11...	--	--	--	--	--	--	--	--	58	421	--

12512550 PROVIDENCE COULEE NEAR CUNNINGHAM, WA

LOCATION.--Lat 46°48'11", long 118°48'55", in SE¼NE¼ sec.8, T.15 N., R.32 E., Adams County, Hydrologic Unit 17020016, on right bank 0.5 mi downstream from Gillis Road, 0.8 upstream from State Highway 26, and 1.4 mi southwest of Cunningham.

DRAINAGE AREA.--52.1 mi².

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,115 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No known diversions.

AVERAGE DISCHARGE.--8 years, 0.89 ft³/s, 645 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 711 ft³/s Feb. 9, 1979, gage height, 5.40 ft; no flow most of the time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 21, 1956, reached a discharge of 2,160 ft³/s at a site 1.5 mi upstream, at station 12512500 Providence Coulee at Cunningham.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 506 ft³/s Feb. 22, gage height 4.37 ft; no flow most of the time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	82	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	62	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	37	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.60	.00	85	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.20	.00	69	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	80	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	79	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	43	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	68	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	50	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.10	.00	136	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	6.0	.00	65	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	15	.00	44	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	2.0	.00	2.3	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	1.4	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	23.90	.00	903.82	.00	.00	.00	.00	.00	.00	.00
MEAN	.00	.00	.77	.00	32.3	.00	.00	.00	.00	.00	.00	.00
MAX	.00	.00	15	.00	136	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	47	.00	1790	.00	.00	.00	.00	.00	.00	.00

CAL YR 1984	TOTAL	477.12	MEAN	1.30	MAX	206	MIN	.00	AC-FT	946
WTR YR 1985	TOTAL	927.72	MEAN	2.54	MAX	136	MIN	.00	AC-FT	1840

12513000 ESQUATZEL COULEE AT CONNELL, WA

LOCATION.--Lat 46°39'49", long 118°51'44", in SE¼SW¼SE¼ sec.36, T.14 N., R.31 E., Franklin County, Hydrologic Unit 17020016, on right bank at upstream end of Clark Street Bridge, in Connell, 2.3 mi downstream from left bank tributary, and 7.8 mi downstream from Hatton Coulee.

DRAINAGE AREA.--234 mi^2, approximately.

PERIOD OF RECORD.--January 1953 to current year. Records published for period August 1959 to September 1964 include effluent from sewage treatment plant 0.8 mi downstream; records adjusted to exclude effluent October 1964 to June 1967.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 820 ft, from topographic map. Prior to Aug. 7, 1959, at site 0.4 mi downstream at different datum, Aug. 7, 1959, to July 8, 1967, at site 0.9 mi downstream at different datum, July 9, 1967, to Oct. 28, 1981, at site 0.7 mi downstream at different datum, and Oct. 29, 1981, to Sept. 30, 1984 at different datum.

REMARKS.--Estimated daily discharges: Oct. 23, 24, Nov. 2, 3, 10-16, Nov. 18 to Dec. 31, Jan. 23 to Feb. 8, Feb. 10, 11. Records fair except those during winter period, which are poor. No diversion upstream from station.

AVERAGE DISCHARGE.--33 years, 1.73 ft^3/s, 1,253 acre-ft/yr, adjusted for effluent from sewage treatment plant 1959-64.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ft^3/s Feb. 21, 1956, gage height, 12.68 ft, site and datum then in use; no flow most of the time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,760 ft^3/s Feb. 12, gage height, 17.06 ft. No flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.00	.00	.00	.00	.00	.00	1.4	.96	1.9	6.4	8.1
2	1.1	.00	.00	.00	.00	.00	.00	4.5	4.8	1.2	5.9	8.8
3	1.8	.00	.00	.00	.00	.00	.00	4.4	7.6	2.2	.07	9.1
4	1.6	.00	.00	.00	.00	.00	.00	4.0	8.5	3.7	.04	6.7
5	.92	.00	.00	.00	.00	.00	.00	4.7	8.1	2.8	.07	5.3
6	.92	.00	.00	.00	.00	.00	.00	4.9	5.7	1.4	4.2	6.5
7	.81	.00	.00	.00	.00	.00	.00	5.8	7.2	3.9	5.1	7.4
8	1.2	.00	.00	.00	.00	.00	.00	4.0	3.8	6.0	5.2	8.7
9	1.2	.00	.00	.00	.00	.00	.00	3.7	3.1	4.5	7.0	7.5
10	.48	.00	.00	.00	.00	.00	.00	3.8	5.1	4.4	5.6	8.6
11	.08	.00	.00	.00	103	.00	.00	1.5	.97	3.8	7.8	6.7
12	.05	.00	.00	.00	720	.00	.00	.85	.51	5.2	11	6.4
13	.39	.00	.00	.00	344	.00	.00	.67	1.2	5.4	6.9	5.3
14	2.8	.00	.00	.00	182	.00	.00	2.0	.77	6.9	6.3	2.1
15	2.2	.00	.00	.00	412	.00	.01	5.4	1.2	6.3	6.1	4.5
16	3.0	.00	.00	.00	278	.00	2.4	4.5	1.5	4.8	4.9	6.4
17	2.9	.00	.00	.00	200	.00	1.8	.33	1.1	4.3	7.4	8.7
18	2.8	.00	.00	.00	172	.00	2.9	.81	1.6	5.2	4.7	9.5
19	.26	.00	.00	.00	127	.00	2.6	1.0	1.9	3.7	5.7	3.1
20	.00	.00	.00	.00	131	.00	1.3	1.1	.21	5.2	4.9	3.0
21	.00	.00	.00	.00	87	.00	.63	1.1	.64	4.1	7.2	3.4
22	.00	.00	15	.00	301	.00	.55	3.4	2.5	3.6	10	3.3
23	.00	.00	50	.00	337	.00	.04	1.8	5.0	2.1	7.9	2.2
24	.00	.00	20	.00	303	.00	.31	3.5	3.4	2.5	7.3	3.3
25	.00	.00	2.0	.00	65	.00	.06	6.0	4.2	5.1	7.5	2.1
26	.00	.00	.00	.00	8.9	.00	.07	6.3	3.2	5.7	8.7	6.2
27	.00	.00	.00	.00	.55	.00	.95	6.0	2.8	5.6	4.5	7.7
28	.00	.00	.00	.00	.00	.00	1.6	5.7	3.1	3.8	6.1	4.7
29	.00	.00	.00	.00	---	.00	1.6	3.5	2.6	3.9	.65	1.8
30	.00	.00	.00	.00	---	.00	.16	4.4	1.4	3.0	4.6	4.1
31	.00	---	.00	.00	---	.00	---	2.3	---	5.5	6.3	---
TOTAL	25.81	.00	87.00	.00	3771.45	.00	16.98	103.36	94.66	127.7	176.03	171.2
MEAN	.83	.00	2.81	.00	135	.00	.57	3.33	3.16	4.12	5.68	5.71
MAX	3.0	.00	50	.00	720	.00	2.9	6.3	8.5	6.9	11	9.5
MIN	.00	.00	.00	.00	.00	.00	.00	.33	.21	1.2	.04	1.8
AC-FT	51	.00	173	.00	7480	.00	34	205	188	253	349	340

CAL YR 1984 TOTAL 1483.48 MEAN 4.05 MAX 535 MIN .00 AC-FT 2940
WTR YR 1985 TOTAL 4574.19 MEAN 12.5 MAX 720 MIN .00 AC-FT 9070

12514000 COLUMBIA RIVER AT PASCO, WA

LOCATION.--Lat 46°13'40", long 119°08'03", in NW¼NW¼ sec.36, T.9 N., R.29 E., Franklin County, Hydrologic Unit 17020016, in bridge pier on U.S. Highway 12 between Pasco and Kennewick, 5.2 mi downstream from Yakima River, 5.8 mi upstream from Snake River, and at mile 330.0.

DRAINAGE AREA.--104,000 mi^2, approximately.

PERIOD OF RECORD.--October 1963 to September 1966 (discharge); October 1979 to current year (elevations only). Fragmentary records of gage height for other years in files of Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Gage is within the pool formed by McNary Dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 346.09 ft June 17, 1964; minimum, 335.97 ft Jan. 27, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 341.40 ft May 24; minimum, 336.11 ft Dec. 11.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338.96	339.09	339.55	338.96	341.08	---	339.36	339.16	340.52	339.82	---	338.99
2	339.62	339.55	338.86	337.37	340.51	---	338.48	339.83	339.77	340.06	---	338.45
3	339.62	339.12	337.15	337.61	340.40	---	339.02	340.54	337.41	339.87	---	338.19
4	339.35	339.24	337.20	338.38	340.57	---	340.09	340.71	337.02	339.78	---	339.55
5	338.83	338.53	338.65	339.84	341.09	---	339.84	340.77	338.33	---	---	339.68
6	338.83	338.93	339.53	339.88	---	---	339.60	340.97	339.21	---	---	339.17
7	339.17	339.56	339.71	339.90	---	---	339.37	340.71	339.37	---	---	339.13
8	338.54	339.45	339.78	340.52	---	---	339.29	340.62	340.24	---	---	338.72
9	338.41	339.30	338.59	340.67	---	---	339.79	340.68	340.18	---	---	338.59
10	338.76	339.42	336.73	340.58	---	---	339.61	340.88	340.28	---	---	338.87
11	338.69	339.22	336.84	340.69	---	---	339.51	340.69	339.08	---	---	338.69
12	339.82	339.18	338.46	340.69	---	---	339.04	340.59	338.73	---	---	338.82
13	339.65	339.13	339.63	340.60	---	339.08	339.46	340.22	338.06	---	---	339.03
14	339.48	339.66	339.88	340.49	---	339.00	338.96	340.87	338.32	---	---	339.03
15	339.22	339.84	339.82	340.43	---	339.03	338.52	340.49	338.98	---	---	338.84
16	339.25	340.04	339.13	339.71	---	339.08	339.53	340.47	339.30	---	---	338.75
17	339.70	340.58	337.37	338.90	---	339.01	340.82	339.69	338.39	---	---	339.34
18	339.11	340.46	337.28	339.48	---	339.02	340.55	338.16	338.58	---	---	338.98
19	338.91	340.08	338.06	340.21	---	339.00	340.95	338.23	339.24	---	---	338.83
20	338.59	340.44	339.21	340.18	---	338.98	340.89	338.17	339.06	---	---	338.56
21	339.50	340.32	339.53	339.87	---	339.03	340.58	338.60	338.93	---	---	339.29
22	338.69	340.42	339.74	340.19	---	338.99	338.71	339.06	338.70	---	---	339.06
23	338.71	340.18	339.74	340.27	---	339.07	339.50	339.67	338.87	---	---	339.08
24	339.85	339.51	339.23	340.73	---	339.03	340.44	340.78	338.25	---	---	339.41
25	339.77	338.82	339.63	341.11	---	---	339.92	340.78	338.41	---	---	339.09
26	339.64	338.03	339.50	340.91	---	338.67	339.85	340.32	338.59	---	---	339.27
27	339.82	337.63	338.87	340.79	---	339.26	339.78	340.08	338.97	---	---	339.15
28	339.48	338.81	339.47	340.22	---	338.74	339.25	340.35	338.99	---	---	339.04
29	338.89	339.46	339.56	340.38	---	339.06	338.36	340.82	339.64	---	---	338.99
30	338.82	339.83	339.15	340.63	---	339.66	338.67	340.85	339.88	---	---	338.92
31	339.58	---	338.61	341.09	---	339.86	---	340.52	---	---	339.37	---
MEAN	339.20	339.46	338.85	340.04	---	---	339.59	340.14	338.98	---	---	338.98
MAX	339.85	340.58	339.88	341.11	---	---	340.95	340.97	340.52	---	---	339.68
MIN	338.41	337.63	336.73	337.37	---	---	338.36	338.16	337.02	---	---	338.19

CAL YR 1984 MEAN 339.35 MAX 341.31 MIN 336.29

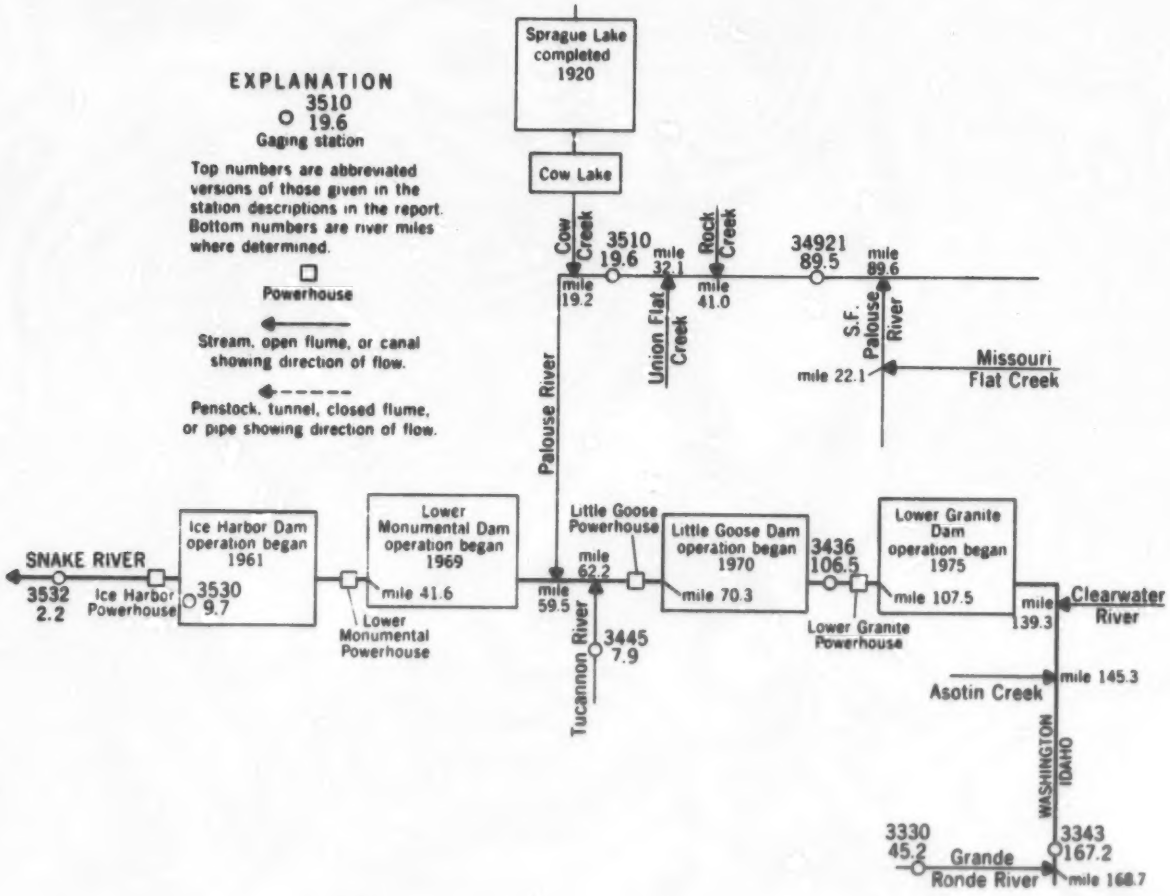
EXPLANATION
3510
19.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Sprague Lake completed 1920
Cow Lake
Cow Creek
3510
19.6
mile 19.2
mile 32.1
Rock Creek
mile 41.0
34921
89.5
mile 89.6
Union Flat Creek
S.F. Palouse River
Missouri Flat Creek
mile 22.1
Palouse River
SNAKE RIVER
3532
2.2
Ice Harbor Powerhouse
3530
9.7
Ice Harbor Dam operation began 1961
Lower Monumental Dam operation began 1969
mile 41.6
Lower Monumental Powerhouse
mile 59.5
mile 62.2
Little Goose Powerhouse
Little Goose Dam operation began 1970
mile 70.3
Tucannon River
3445
7.9
3436
106.5
Lower Granite Powerhouse
Lower Granite Dam operation began 1975
mile 107.5
mile 139.3
Clearwater River
mile 145.3
Asotin Creek
WASHINGTON
IDAHO
3343
167.2
mile 168.7
3330
45.2
Grande Ronde River

Figure 30.--Gaging stations in Snake River basin.

13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56'47", long 117°26'54", in NE¼NW¼ sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank 500 ft downstream from bridge at Troy, 600 ft downstream from Wenaha River, and at mile 45.2.

DRAINAGE AREA.--3,275 mi².

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft upstream at datum 10.85 ft lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft upstream at datum 1.15 ft higher.

REMARKS.--Estimated daily discharges: Dec. 2-8, 18-22, Dec. 30 to Jan. 8, 11-20, Jan. 28 to Feb. 14. Records excellent except for estimated daily discharges, which are fair. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation upstream from station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep Creek and tributaries in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--41 years, 3,146 ft³/s, 2,279,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s Dec. 23, 1964, gage height, 11.25 ft; minimum, 344 ft³/s Aug. 19-21, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 11	0530	*14,100	*7.29	June 8	0800	9,630	6.35
May 25	0630	9,760	6.38				

Minimum, 570 ft³/s Aug. 29 to Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	975	1190	1960	1050	840	2460	5780	6990	5880	2050	1250	574
2	959	1450	1600	1000	820	2470	8590	8170	6350	1900	1300	596
3	936	1780	1200	1000	820	2260	10500	8790	6150	1800	1220	621
4	924	1850	1150	1100	820	2160	10400	8270	6030	1740	1100	612
5	911	1680	1200	1200	840	1960	9690	7390	6390	1690	1050	596
6	906	1570	1250	1300	840	1810	9870	6780	6900	1580	990	635
7	900	1600	1350	1350	860	1710	10100	6540	8390	1510	914	657
8	885	1550	1450	1400	880	1630	10900	6380	9110	1440	864	678
9	870	1570	1540	1240	940	1670	11800	6120	7970	1400	846	794
10	860	1590	1640	1170	1000	1930	12400	5980	6940	1330	823	872
11	946	1640	1530	1100	980	2250	13900	5770	6320	1270	837	864
12	1090	2050	1610	1050	940	2450	13100	5390	6110	1200	850	949
13	1120	2180	1490	1000	940	2660	12500	5070	6160	1110	789	923
14	1190	2540	1480	1000	940	2880	12700	5100	5780	1020	760	879
15	1130	2300	1430	980	975	3270	13200	4930	5540	953	725	944
16	1100	2060	1350	980	965	3600	13100	5200	5480	895	691	946
17	1070	1900	1300	980	992	4040	12100	5790	5090	836	692	992
18	1050	1790	1100	1000	1000	4610	11100	6410	4750	801	674	1070
19	1030	1760	1050	1020	1030	5190	10100	7160	4740	765	653	991
20	1000	1760	1000	1050	1070	5570	8820	7870	4720	722	666	952
21	993	1840	1100	1130	1010	5930	7840	8360	4260	692	710	920
22	991	1780	1250	1030	1050	5340	7090	8250	3780	673	725	891
23	987	1710	1410	1030	1210	4700	6840	8650	3430	665	692	858
24	1020	1890	1530	1010	1490	4970	6380	9220	3100	628	676	832
25	1070	1900	1480	1010	2230	4840	5960	9350	2800	622	658	814
26	1280	1790	1450	973	2310	4290	5560	8620	2580	634	635	799
27	1400	1700	1440	962	2180	3810	5250	7510	2340	623	630	784
28	1380	1660	1410	900	2230	3450	5480	6630	2260	611	608	760
29	1330	1910	1350	870	---	3120	5900	6460	2250	641	581	751
30	1270	2010	1250	850	---	2960	6260	6500	2200	675	574	751
31	1240	---	1150	840	---	3590	---	5940	---	1010	572	---
TOTAL	32813	54000	42500	32579	32202	103580	283210	215790	153800	33486	24755	24305
MEAN	1058	1800	1371	1051	1150	3341	9440	6961	5127	1080	799	810
MAX	1400	2540	1960	1400	2310	5930	13900	9350	9110	2050	1300	1070
MIN	860	1190	1000	840	820	1630	5250	4930	2200	611	572	574
AC-FT	65080	107100	84300	64610	63870	205500	561700	428000	305100	66420	49100	48210

CAL YR 1984 TOTAL 1505411 MEAN 4113 MAX 15100 MIN 860 AC-FT 2986000
WTR YR 1985 TOTAL 1033016 MEAN 2830 MAX 13900 MIN 572 AC-FT 2049000

13334300 SNAKE RIVER NEAR ANATONE, WA

LOCATION.--Lat 46°05'50", long 116°58'36", in SE¼SE¼NE¼ sec.12, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on left bank 1.2 mi downstream from Grand Ronde River, 7.8 mi east of Anatone, 22 mi south of Clarkston, and at mile 167.2.

DRAINAGE AREA.--92,960 mi², approximately.

PERIOD OF RECORD.--July 1958 to current year.

REVISED RECORDS.--WDR WA-76-1: 1974 and 1975.

GAGE.--Water-stage recorder. Datum of gage is 806.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records excellent. Diversions upstream from station for irrigation of about 4,090,000 acres, of which about 750,000 acres are by withdrawal from ground water. Flow regulated by many reservoirs upstream from station with a total usable capacity of more than 10,000,000 acre-feet, the most effective of which is Brownlee Reservoir 117.8 mi upstream. Diurnal fluctuations caused by Hells Canyon powerplant.

AVERAGE DISCHARGE.--27 years, 37,620 ft³/s, 27,260,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195,000 ft³/s June 18, 1974, gage height, 24.45 ft; minimum, 6,010 ft³/s Sept. 2, 1958, gage height, 1.29 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 82,700 ft³/s Apr. 11, gage height, 13.31 ft; minimum, 13,800 ft³/s July 30, gage height, 3.66 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25800	38200	38500	35000	31200	34700	42200	49000	68300	28400	15500	14400
2	27300	36900	38100	34400	28700	34700	47300	51200	67600	30900	16300	14500
3	27300	37600	37500	34600	28300	32600	55400	56200	65000	31300	17100	14500
4	27600	38400	36500	32500	30200	36200	62300	57300	53300	24800	18600	15400
5	25900	38400	35400	33500	28600	33900	62900	56200	66800	21800	19800	16900
6	24700	37900	34600	33700	28700	33700	62700	53000	67600	22800	20500	18500
7	26100	37400	34500	34100	28600	31400	62400	50400	70800	27600	19200	17300
8	28700	35300	35000	33800	27500	32400	64000	52100	71600	25900	17400	15000
9	23900	34200	35700	34100	26200	30000	66800	54800	66000	22300	15500	16100
10	25900	38100	37100	35000	26200	29100	74300	54300	59400	20400	14800	22000
11	24600	37600	37900	34400	31200	32400	81200	50100	59700	21100	14900	24700
12	25000	37600	36200	33500	33200	31200	79200	43600	56300	21300	15000	26700
13	34700	38000	37000	33700	30600	32000	73600	41200	52000	18400	15200	27000
14	30500	38500	34600	33300	34300	32200	73300	45500	48000	16700	14800	26800
15	31900	38500	32600	34300	32800	34600	75700	44200	47800	16500	14600	26300
16	27600	38000	33100	33100	33300	32300	78800	40400	46200	19600	14500	26100
17	27900	37500	31000	33100	32400	34100	79900	44900	43000	20300	14400	26700
18	27900	36500	32900	32400	33900	34900	78900	49300	41800	18200	14400	27000
19	33900	35800	31300	31600	32700	35100	77400	50700	38700	15500	14300	27500
20	36800	35500	28600	29400	32300	37600	74200	56500	37100	15200	14400	27000
21	37000	35100	29200	32300	32000	39000	69600	62400	36000	14900	15400	26600
22	37000	34700	25600	32200	28600	43600	63300	65400	37800	14600	15100	26100
23	37000	35700	24000	32000	28000	42400	58800	69500	34000	14300	14800	25800
24	37000	35600	25300	31500	26700	42100	56200	74700	33600	14000	14600	25600
25	37000	38100	26700	31000	33700	42300	54300	78100	32700	13900	14600	25500
26	38100	38200	29300	30800	36300	42300	52400	77800	32200	14200	14800	25500
27	38200	37000	32300	30300	35800	41700	43600	73500	30800	14000	14700	25300
28	38200	37900	31700	33500	32500	40900	41000	70000	31300	13900	15000	25000
29	38200	35000	34100	29800	---	40100	43400	69800	30600	14500	14900	21700
30	38100	35500	34800	29000	---	39500	43400	71300	31500	14700	14300	24100
31	37900	---	33800	33700	---	39600	---	70600	---	15100	14400	---
TOTAL	977700	1108700	1026900	1015600	864500	1118600	1898500	1784000	1467500	597100	483800	681600
MEAN	31540	36960	33130	32760	30880	36080	63280	57550	48920	19260	15610	22720
MAX	38200	38500	38500	35000	36300	43600	81200	78100	71600	31300	20500	27500
MIN	23900	34200	24000	29000	26200	29100	41000	40400	30600	13900	14300	14400
AC-FT	1939000	2199000	2037000	2014000	1715000	2219000	3766000	3539000	2911000	1184000	959600	1352000

CAL YR 1984 TOTAL 21313300 MEAN 58230 MAX 177000 MIN 18800 AC-FT 42275000
WTR YR 1985 TOTAL 13024500 MEAN 35680 MAX 81200 MIN 13900 AC-FT 25834000

13343600 SNAKE RIVER BELOW LOWER GRANITE DAM, WA

LOCATION.--Lat 46°40'04", long 117°26'38", in NE¼SE¼ sec.30, T.14 N., R.43 E., Garfield County, Hydrologic Unit 17060107, 1.0 mi below Lower Granite Dam, 16.0 mi northeast of Pomeroy, and at mile 106.5.

DRAINAGE AREA.--103,500 mi², approximately.

PERIOD OF RECORD.--October 1978 to September 1985 (discontinued).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is 600 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Discharges were provided by Corps of Engineers' Lower Granite Dam powerplant through North Pacific Division Reservoir Control Center. Regulation by Lower Granite Dam 1.0 mi upstream and by other storage reservoirs upstream from station. Diversions upstream from station for irrigation of over 4,090,000 acres.

AVERAGE DISCHARGE.--7 years, 56,250 ft³/s, 40,750,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 248,000 ft³/s May 31, 1984; minimum daily, 7,600 ft³/s Feb. 17, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 124,000 ft³/s June 9; minimum daily, 14,300 ft³/s July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29500	40000	55300	42100	44500	41800	54000	74800	100000	36600	24000	23200
2	33500	42600	44800	40100	43600	34900	60800	82500	92100	40100	33000	21600
3	29300	41000	43200	40300	42600	41300	71700	94000	98500	46100	24000	24200
4	32600	42900	40700	41600	45800	40500	80400	91800	89900	36100	29200	30200
5	31000	48000	50000	46000	31600	42600	77300	91800	91200	23800	32600	21800
6	26900	44600	41300	42600	38900	36300	72600	89600	99200	27400	30700	26300
7	28500	44900	49200	45200	46200	40000	67900	81400	110000	37300	24500	28600
8	34300	43500	41900	46200	38600	33000	78300	80800	123000	35000	22100	28800
9	27500	47000	37700	49500	38300	37200	84300	89700	124000	29200	23800	28200
10	29300	42600	40900	48700	38400	37700	93000	88500	106000	31200	19400	40800
11	30400	42900	54500	43200	44100	33100	104000	83800	93600	30400	20200	36200
12	29000	47700	47800	50400	41600	46900	110000	74900	88400	33900	23700	38300
13	37600	41700	45600	44800	45200	36700	97200	68500	85100	26800	19600	41500
14	35800	48400	43800	43100	46500	39000	95700	72400	79000	16300	23000	36500
15	35900	39700	39700	46600	46100	38100	105000	72600	73500	20700	23300	34300
16	30000	45700	34400	46300	43100	40900	106000	68200	65500	18800	29800	31100
17	32900	42900	42200	47700	37500	37600	112000	73500	66500	25600	25300	33000
18	32100	55300	35500	45200	39200	44800	109000	86000	62100	26900	17200	37800
19	34000	37400	40700	46300	47700	42700	108000	83500	63900	29800	30500	40000
20	41000	45900	38900	44100	48400	56600	99600	89200	57300	22900	22100	37900
21	43000	36100	33700	42000	42400	45200	89100	95600	57400	14300	26000	34600
22	39300	43900	34700	47300	44200	56000	81100	105000	56400	19100	20700	31300
23	40800	47900	23500	43500	37700	52000	77400	112000	54300	16000	23500	31600
24	40600	56400	31400	45400	33000	48500	80100	122000	46800	22800	21300	30200
25	39100	46000	31500	41600	39700	54800	80800	120000	46600	24400	19300	33500
26	43400	43700	38600	37600	47500	46800	74600	119000	49900	20900	24300	30800
27	44100	50000	43100	43700	52700	50200	65200	108000	43300	21900	25000	29100
28	44400	51300	44600	48400	45400	43300	53000	98400	41300	18700	21900	32200
29	43500	45300	44000	40700	---	48800	73700	103000	38000	21500	23600	25100
30	43800	47100	45300	45200	---	46100	75100	105000	38400	26600	22800	28800
31	42400	---	51200	45400	---	45800	---	103000	---	21200	20100	---
TOTAL	1105500	1352400	1289700	1380800	1190500	1339200	2536900	2828500	2241200	822300	746500	947500
MEAN	35660	45080	41600	44540	42520	43200	84560	91240	74710	26530	24080	31580
MAX	44400	56400	55300	50400	52700	56600	112000	122000	124000	46100	33000	41500
MIN	26900	36100	23500	37600	31600	33000	53000	68200	38000	14300	17200	21600
AC-FT	2193000	2682000	2558000	2739000	2361000	2656000	5032000	5610000	4445000	1631000	1481000	1879000

CAL YR 1984 TOTAL 27399700 MEAN 74860 MAX 248000 MIN 19500 AC-FT 54347000
WTR YR 1985 TOTAL 17781000 MEAN 48720 MAX 124000 MIN 14300 AC-FT 35269000

BEST COPY AVAILABLE

13344500 TUCANNON RIVER NEAR STARBUCK, WA

LOCATION.--Lat 46°30'17", long 118°03'55", in NE¼SW¼ sec.21, T.12 N., R.38 E., Columbia County, Hydrologic Unit 17060107, on right bank 180 ft downstream from county road bridge, 0.5 mi downstream from Smith Hollow, 3.0 mi east of Starbuck, 3.3 mi downstream from Pataha Creek, and at mile 7.9.

DRAINAGE AREA.--431 mi².

PERIOD OF RECORD.--October 1914 to September 1917, August 1928 to September 1931, October 1958 to current year. Monthly discharge only for October and November 1914, published in WSP 1317.

REVISED RECORDS.--WSP 1347: 1930.

GAGE.--Water-stage recorder. Elevation of gage is 735.9 ft, from plane table survey. Nov. 8, 1914, to Sept. 30, 1917, nonrecording gage at site 2.8 mi upstream at different datum. Aug. 9, 1928, to Sept. 30, 1931, nonrecording gages at site 2.5 mi upstream at various datums.

REMARKS.--Estimated daily discharges: Dec. 18-21, Jan. 30 to Feb. 5, May 23 to June 19. Records good except for May 23 to June 19, which are poor. Many small diversions for irrigation upstream from the station. Water temperatures and sediment records October 1962 to June 1970.

AVERAGE DISCHARGE.--33 years (water years 1915-17, 1929-31, 1959-85), 174 ft³/s, 126,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft³/s Dec. 22, 1964, gage height, 9.84 ft, from rating curve extended above 2,500 ft³/s on basis of slope-area measurement of peak flow; minimum, 15 ft³/s July 11, 12, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 12	0400	*1,350	*3.59	May 23	2100	1,090	3.20
Feb. 24	2230	1,040	3.13				

Minimum discharge, 48 ft³/s July 25-28, 30, 31, gage height, 0.64 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	93	139	129	62	217	188	249	269	92	78	58
2	78	121	134	126	64	200	228	307	252	83	85	61
3	78	161	126	124	60	189	277	365	227	78	73	64
4	79	150	120	121	55	183	317	357	215	79	70	62
5	79	130	119	120	60	173	313	311	212	78	75	60
6	80	122	115	117	85	164	301	278	236	74	60	65
7	80	119	115	116	112	156	297	261	322	72	57	79
8	79	113	113	115	106	148	310	258	311	74	59	74
9	78	114	118	113	103	143	334	258	269	70	59	87
10	79	113	187	110	101	140	363	261	236	66	57	95
11	90	112	151	109	177	142	422	254	215	66	63	85
12	103	120	146	105	676	144	454	241	197	67	65	86
13	106	127	144	105	202	143	424	229	192	66	58	82
14	107	145	142	107	146	147	424	240	183	67	56	80
15	98	141	175	104	415	151	456	233	189	65	55	102
16	96	134	142	98	208	158	461	237	172	61	57	94
17	95	127	135	98	154	168	426	273	156	60	57	103
18	93	124	105	98	141	176	380	301	134	59	57	104
19	92	124	75	99	160	186	355	324	138	57	58	94
20	92	122	57	104	186	200	318	344	132	57	61	87
21	91	122	65	106	182	229	285	361	124	57	65	82
22	91	115	190	108	289	219	262	348	120	60	66	80
23	88	116	218	106	264	216	248	420	116	58	61	80
24	93	127	166	106	370	230	229	411	114	55	60	85
25	95	121	141	104	327	208	208	403	109	56	57	79
26	118	116	141	106	216	196	197	359	104	51	56	78
27	121	120	147	106	198	194	191	304	100	50	57	78
28	111	130	146	106	193	182	194	279	97	52	57	79
29	103	144	139	104	---	171	207	279	94	55	57	78
30	98	145	153	78	---	166	220	296	95	50	54	79
31	94	---	139	68	---	174	---	286	---	54	56	---
TOTAL	2865	3768	4203	3316	5312	5513	9289	9327	5330	1989	1906	2420
MEAN	92.4	126	136	107	190	178	310	301	178	64.2	61.5	80.7
MAX	121	161	218	129	676	230	461	420	322	92	85	104
MIN	78	93	57	68	55	140	188	229	94	50	54	58
AC-FT	5680	7470	8340	6580	10540	10940	18420	18500	10570	3950	3780	4800

CAL YR 1984	TOTAL	61241	MEAN	167	MAX	716	MIN	57	AC-FT	121500
WTR YR 1985	TOTAL	55238	MEAN	151	MAX	676	MIN	50	AC-FT	109600

13349210 PALOUSE RIVER BELOW SOUTH FORK, AT COLFAX, WA

LOCATION.--Lat 46°53'23", long 117°22'09", in NW¼SW¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank at Colfax, 750 ft downstream from South Fork, 0.3 mi upstream from bridge on U.S. Highway 195, and at mile 89.5.

DRAINAGE AREA.--796 mi².

PERIOD OF RECORD.--October 1963 to June 1973, October 1973 to September 1975 (annual maximum only), October 1975 to current year.

REVISED RECORDS.--WSP 2134: 1967, 1968.

GAGE.--Water-stage recorder. Datum of gage is 1,932.22 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Estimated daily discharges: Dec. 5-7, 17-21, Dec. 31 to Jan. 15, Jan. 27 to Feb. 6, Apr. 4 to May 1, May 3-8. Records fair except for estimated daily discharges, which are poor. Small diversions for irrigation upstream from station. Slight regulation by millpond and city of Moscow, Idaho, sewage disposal plant.

AVERAGE DISCHARGE.--19 years (water years 1964-72, 1976-85), 391 ft³/s, 283,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft³/s Jan. 16, 1974, gage height, 18.73 ft; minimum, 1.7 ft³/s Aug. 3, 23, 1966; minimum gage height, 0.88 ft Aug. 3, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 3, 1963, reached a stage of 16.49 ft, discharge, 14,500 ft³/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	1715	3,580	9.18	Apr. 2	0400	*3,740	*9.36

Minimum discharge, 8.7 ft³/s Sept. 1, gage height, 1.72 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	59	263	120	76	1010	3210	680	243	54	19	9.2
2	37	66	173	110	76	882	3260	760	179	52	24	10
3	36	97	117	100	80	728	3100	800	161	50	18	11
4	34	165	104	98	76	651	2500	710	142	45	19	12
5	34	120	88	98	84	557	2000	660	130	43	22	11
6	35	92	88	98	100	492	1600	610	146	38	19	12
7	35	79	95	98	121	466	1200	560	362	38	16	14
8	36	77	107	100	128	464	1300	520	685	33	15	19
9	37	102	129	100	126	498	1400	481	526	33	15	24
10	35	102	653	105	127	618	1500	453	429	30	17	31
11	38	99	402	105	118	743	1650	400	334	30	25	31
12	45	97	234	105	138	779	1500	356	270	27	20	35
13	46	129	184	105	169	832	1400	311	229	28	20	34
14	48	148	159	100	181	1020	1300	291	206	26	24	34
15	52	192	143	105	216	1220	1200	326	190	26	24	56
16	55	150	125	107	272	1430	1100	291	173	26	21	53
17	48	118	110	110	312	1630	1000	271	148	25	22	59
18	44	106	90	110	328	1720	940	273	130	23	19	85
19	43	100	80	126	309	1920	860	270	118	23	23	133
20	45	100	80	118	262	2120	800	257	103	23	22	92
21	39	122	120	123	249	2480	700	239	96	20	21	70
22	39	152	186	126	290	1640	620	211	91	19	17	57
23	43	141	470	128	372	1390	560	193	81	17	14	51
24	44	149	832	129	661	2980	580	179	77	15	14	41
25	42	183	612	126	1250	1960	600	162	72	15	14	34
26	43	149	364	131	1100	1370	560	148	70	15	14	29
27	55	122	200	120	908	1060	520	136	69	14	13	26
28	66	119	161	110	871	889	470	130	64	14	12	26
29	73	229	148	90	---	841	520	131	61	14	14	25
30	64	313	143	72	---	1180	600	152	58	19	14	24
31	63	---	130	72	---	2360	---	357	---	16	14	---
TOTAL	1394	3877	6790	3345	9000	37880	38550	11318	5643	851	565	1148.2
MEAN	45.0	129	219	108	321	1222	1285	365	188	27.5	18.2	38.3
MAX	73	313	832	131	1250	2980	3260	800	685	54	25	133
MIN	34	59	80	72	76	464	470	130	58	14	12	9.2
AC-FT	2760	7690	13470	6630	17850	75130	76460	22450	11190	1690	1120	2280

CAL YR 1984	TOTAL	159137	MEAN	435	MAX	4340	MIN	26	AC-FT	315600
WTR YR 1985	TOTAL	120361.2	MEAN	330	MAX	3260	MIN	9.2	AC-FT	238700

13351000 PALOUSE RIVER AT HOOPER, WA

LOCATION.--Lat 46°45'31", long 118°08'52", in NE¼SE¼ sec.27, T.15 N., R.37 E., Whitman County, Hydrologic Unit 17060108, on left bank 150 ft downstream from bridge on State Highway 26 at Hooper, 0.3 mi upstream from Cow Creek, 3.5 mi downstream from right bank tributary, 6.0 mi downstream from Willow Creek, and at mile 19.6.

DRAINAGE AREA.--2,500 mi².

PERIOD OF RECORD.--April to August 1897 (gage heights only), September 1897 to December 1899, April 1900 to April 1907, June 1908 to July 1912, March 1913 to March 1916, February 1951 to current year. Prior to 1904 sometimes published as "near Hooper."

REVISED RECORDS.--WSP 1287: 1897-1904, 1910(M), 1915-16(M). WSP 1447: 1910. WSP 1934: Drainage area. WSP 1447: 1906(M). WSP 1567: 1908-09(M).

GAGE.--Water-stage recorder. Datum of gage is 1,040.8 ft above National Geodetic Vertical Datum of 1929. Apr. 1 to Aug. 31, 1897, nonrecording gage at site 2.5 mi upstream at different datum. Sept. 9, 1897, to March 1916, various nonrecording gages at site 1.5 mi upstream from present site at different datums. Feb. 8 to Mar. 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 18-22, Jan. 2-17, Jan. 28 to Feb. 5. Records good except for estimated daily discharges, which are fair. Diversions upstream from station for irrigation and municiple use. Bonneville Power Administration satellite telemeter at station.

AVERAGE DISCHARGE.--47 years (water years 1898-99, 1901-06, 1909-11, 1914-15, 1952-85), 620 ft³/s, 449,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s Feb. 4, 1963, gage height, 19.13 ft, from rating curve extended above 18,000 ft³/s on basis of slope-area measurement of peak flow; no flow part or all of each day June 25, 1910, Aug. 1-17, Aug. 28 to Sept. 4, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 25	0230	*4,900	*10.43	Apr. 2	1745	4,150	9.89
Mar. 25	0745	4,430	10.10				

Minimum discharge, 30 ft³/s Aug. 2, gage height, 3.05 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	128	429	300	170	1940	3550	947	404	105	36	35
2	88	132	400	250	170	1930	3910	947	385	101	31	37
3	89	133	318	220	180	1720	3840	1030	324	98	38	39
4	88	139	241	210	200	1460	3660	1080	297	96	41	38
5	90	183	176	210	220	1290	3130	1010	278	92	50	37
6	88	215	181	210	229	1160	2550	850	274	88	47	37
7	89	184	202	210	250	1060	2410	738	307	82	42	41
8	89	165	221	220	243	1020	2320	671	477	78	45	44
9	85	158	241	220	235	1000	2430	641	762	73	43	48
10	85	172	743	230	240	1120	2550	618	612	68	41	51
11	91	185	1120	230	251	1340	2640	576	488	68	45	54
12	97	185	656	230	333	1450	3010	545	416	64	50	58
13	98	182	487	230	479	1500	2760	518	365	63	48	69
14	102	196	418	220	414	1610	2310	483	337	63	47	65
15	108	229	397	230	615	1850	2230	473	312	60	51	67
16	107	249	359	240	812	2030	2240	477	290	56	49	84
17	109	259	320	250	582	2300	2140	455	269	56	50	91
18	115	222	220	256	586	2430	1900	429	247	56	51	111
19	111	207	170	255	624	2520	1610	422	230	56	48	106
20	107	202	170	261	754	2720	1520	414	207	53	42	135
21	106	197	190	268	817	3130	1330	402	185	52	41	153
22	104	210	220	273	1490	3030	1140	385	172	47	41	129
23	102	236	655	274	1410	2390	1060	365	159	40	43	112
24	102	281	782	276	2320	3220	1130	342	151	38	46	99
25	101	271	617	277	2980	3900	1120	313	145	38	47	91
26	103	299	536	276	2320	2780	1010	300	136	39	42	85
27	104	299	496	275	2000	2280	940	287	126	38	41	78
28	107	273	420	250	1860	2000	860	273	118	37	42	77
29	118	263	362	200	---	1770	836	266	113	37	41	73
30	128	336	350	160	---	1680	889	273	107	33	38	71
31	137	---	326	160	---	2570	---	291	---	36	37	---
TOTAL	3141	6390	12423	7371	22784	62200	63025	16821	8693	1911	1354	2215
MEAN	101	213	401	238	814	2006	2101	543	290	61.6	43.7	73.8
MAX	137	336	1120	300	2980	3900	3910	1080	762	105	51	153
MIN	85	128	170	160	170	1000	836	266	107	33	31	35
AC-FT	6230	12670	24640	14620	45190	123400	125000	33360	17240	3790	2690	4390

CAL YR 1984	TOTAL	280729	MEAN	767	MAX	8750	MIN	53	AC-FT	556800
WTR YR 1985	TOTAL	208328	MEAN	571	MAX	3910	MIN	31	AC-FT	413200

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SE¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 17060110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 8.0 mi northeast of Burbank, and at mile 9.7.

DRAINAGE AREA.--108,500 mi², approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are National Geodetic Vertical Datum of 1929. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi downstream at datum 300 ft higher. Mar. 23, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi downstream at National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records computed from power output, flow over spillway, flow through fish ladder, and lockage records at Ice Harbor Dam. Diversions upstream from station for irrigation of over 4,090,000 acres. Flow regulated by Lake Sacajawea and many upstream storage reservoirs and powerplants. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi downstream see station 13353200.

COOPERATION.--Records furnished by U.S. Corps of Engineers. Records not reviewed.

AVERAGE DISCHARGE.--30 years (water years 1910-16, 1963-85), 56,380 ft³/s, 40,847,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft³/s June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft at a site 0.7 mi downstream, from information by U.S. Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum hourly discharge, 154,000 ft³/s Apr. 18; maximum forebay elevation, 440.40 ft June 3; minimum hourly discharge, 300 ft³/s Dec. 7; minimum forebay elevation, 437.10 ft Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35200	47100	51500	42000	50100	42200	60800	73600	99600	34200	25800	24300
2	29000	43700	53100	51300	43100	34800	75300	75200	89500	36300	32000	24200
3	31400	43500	44200	24700	41600	31500	73300	92100	86700	43000	24900	23300
4	33200	34200	49200	49600	62400	59000	84400	76000	99700	36300	34000	29200
5	33100	52200	44900	44000	40900	33400	81400	98800	90400	37700	36500	25200
6	20400	44500	32500	23900	23000	46300	72900	108000	94300	25600	27700	23600
7	25300	46900	43400	42700	30200	35900	64300	78000	103000	33100	19500	23000
8	35700	41100	60500	45900	37400	41700	68300	69000	120000	39900	23500	33500
9	28600	38400	28500	54400	40200	28000	85600	80900	132000	25400	23000	32000
10	30800	50200	38500	55300	40600	36600	87100	89000	111000	25000	13400	40600
11	33600	41300	57400	48500	58000	49000	102000	84000	97100	35400	14100	39600
12	29600	54500	49100	37600	35100	39100	104000	73500	92300	35500	19700	37000
13	35700	41300	51400	42000	49700	44500	105000	91100	87300	26300	22200	41400
14	35000	44700	38100	46900	57400	42800	101000	62200	82000	14800	26300	32100
15	39800	24400	46900	43400	42300	32500	102000	69200	70700	18400	23900	36700
16	29500	40600	30900	47900	43200	28900	102000	59100	62300	14100	22100	32000
17	38900	46700	45700	47500	36600	42300	116000	70700	65700	15300	22100	35700
18	27900	57400	33200	65300	42000	47400	116000	84000	63200	26800	15000	31200
19	24300	36000	40400	35800	51100	46800	118000	90900	64000	30100	29200	45300
20	43200	48400	41100	28900	44200	60300	108000	92400	56500	30400	19400	41200
21	45700	32900	33000	49900	49200	63200	102000	94200	58200	14700	25400	32500
22	41300	43100	34700	45500	57000	51400	80800	106000	52700	25700	21400	30300
23	35200	50300	19600	44400	35000	56600	74300	113000	47800	11800	28700	35100
24	37100	56400	31700	39200	22700	46000	74400	114000	54600	16100	18700	28100
25	37000	59900	27300	31800	44100	63900	84500	118000	52400	16200	19400	30900
26	42400	56200	39200	32700	62300	62300	72000	112000	44100	20600	29200	32000
27	44800	45500	44000	43900	47000	46200	58900	107000	38800	14200	22100	29100
28	50800	43200	53900	49100	55300	34100	53000	105000	35100	19500	24200	30200
29	45500	43600	36800	39300	---	48700	81100	104000	24900	24400	19100	25200
30	40500	43900	45200	49200	---	46100	80500	100000	32400	22200	18600	29000
31	34200	---	53800	39600	---	50800	---	99300	---	21300	20500	---
TOTAL	1094700	1352100	1299700	1342300	1241700	1392300	2588900	2790200	2208300	792300	721600	953500
MEAN	35310	45070	41930	43300	44350	44910	86300	90010	73610	25560	23280	31780
MAX	50800	59900	60500	65300	62400	63900	118000	118000	132000	43000	36500	45300
MIN	20400	24400	19600	23900	22700	28000	53000	59100	24900	11800	13400	23000
AC-FT	2171000	2682000	2578000	2662000	2463000	2762000	5135000	5534000	4380000	1572000	1431000	1891000

CAL YR 1984 TOTAL 27323500 MEAN 74650 MAX 248000 MIN 15200 AC-FT 54196000
WTR YR 1985 TOTAL 17777600 MEAN 48710 MAX 132000 MIN 11800 AC-FT 35262000

13353200 SNAKE RIVER AT BURBANK, WA
(National stream quality accounting network station)

LOCATION.--Lat 46°12'59", long 119°01'22", in NE¼SW¼ sec.35, T.9 N., R.30 E., Franklin County, Hydrologic Unit 17060110, at U.S. Highway 395/410 bridge at Burbank, 2.2 mi upstream from mouth, and 7.5 mi downstream from Ice Harbor Dam.

DRAINAGE AREA.--108,800 mi^2.

PERIOD OF RECORD.--Water years 1960-69, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to September 1979.
WATER TEMPERATURES: April 1973 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV											
19...	1140	33800	344	7.50	9.0	3.2	10.5	91	K4	440	130
FEB											
05...	1415	77000	327	7.70	1.0	2.3	14.2	101	K3	140	130
MAY											
22...	1125	100000	101	7.50	13.0	10	11.6	111	<1	<1	36
AUG											
27...	1145	25000	202	7.80	21.5	2.1	8.0	92	K2	K5	71

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV											
19...	11	35	11	24	28	0.9	3.0	122	33	15	0.4
FEB											
05...	10	34	10	19	24	0.8	2.7	116	26	15	0.4
MAY											
22...	--	10	2.7	5.6	24	0.4	1.3	42	8.7	3.3	0.2
AUG											
27...	--	19	5.8	14	29	0.7	2.0	74	20	7.9	0.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV											
19...	22	218	220	0.3	19900	--	0.80	0.02	0.3	0.05	0.05
FEB											
05...	23	241	200	0.33	50100	--	1.10	0.05	0.3	0.04	0.04
MAY											
22...	15	60	72	0.08	16200	18	<0.10	0.07	0.5	0.05	0.01
AUG											
27...	11	119	120	0.16	8030	1	0.15	0.07	0.3	0.04	0.03

K - Results based on colony count outside the acceptable range (non-ideal colony count).

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 19...	0.04	30	3	44	<0.5	<1	<1	<3	16	19
FEB 05...	0.03	20	2	41	0.6	<1	<1	<3	<1	22
MAY 22...	0.01	50	<1	15	<0.5	<1	<1	<3	9	55
AUG 27...	0.02	<10	2	27	<0.5	<1	1	<3	1	19

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)
NOV 19...	4	20	9	<0.1	<10	<1	<1	<1	190	6
FEB 05...	1	15	6	<0.1	<10	3	3	<1	180	<6
MAY 22...	6	7	<1	<0.1	<10	4	<1	<1	60	<6
AUG 27...	<1	10	5	0.3	<10	<1	<1	<1	110	<6

DATE	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV 19...	30	4.8	<0.4	3.9	3.4	0.5	0.04	2.6	6	548
FEB 05...	30	--	--	--	--	--	--	--	2	416
MAY 22...	18	<2.0	<0.7	1.1	0.9	<0.8	0.06	0.7	6	1620
AUG 27...	16	--	--	--	--	--	--	--	3	203

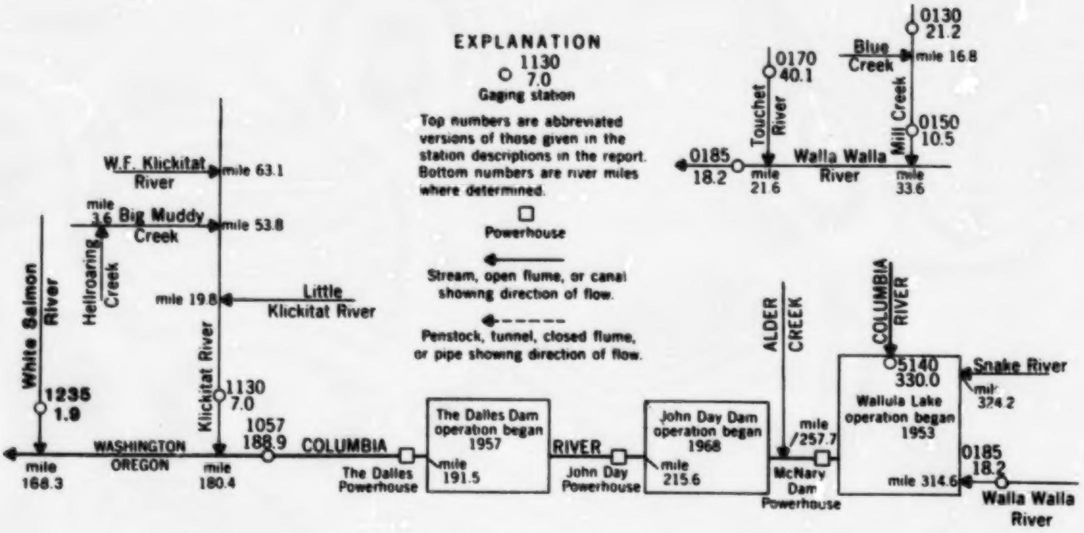
EXPLANATION
1130
7.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
W.F. Klickitat River
mile 63.1
mile 3.6
Big Muddy Creek
mile 53.8
Hellroaring Creek
White Salmon River
mile 19.8
Little Klickitat River
Klickitat River
1235
1.9
1130
7.0
1057
188.9
WASHINGTON
OREGON
mile 168.3
mile 180.4
COLUMBIA
The Dalles Powerhouse
mile 191.5
The Dalles Dam operation began 1957
RIVER
John Day Powerhouse
mile 215.6
John Day Dam operation began 1968
ALDER CREEK
mile 257.7
McNary Dam Powerhouse
COLUMBIA RIVER
5140
330.0
Wallula Lake operation began 1953
Snake River
mile 324.2
0185
18.2
mile 314.6
Walla Walla River
0130
21.2
Blue Creek
mile 16.8
0170
40.1
Touchet River
Mill Creek
0150
10.5
0185
18.2
Walla Walla River
mile 21.6
mile 33.6

Figure 31.--Gaging stations in Columbia River basin between Wallula Lake and White Salmon River.

14013000 MILL CREEK NEAR WALLA WALLA, WA

LOCATION.--Lat 46°00'29", long 118°07'03", in SW¼SW¼ sec.7, T.6 N., R.38 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.1 mi downstream from Railroad Canyon, 4.0 mi downstream from city of Walla Walla diversion dam, 4.4 mi upstream from Blue Creek, 11.5 mi southeast of Walla Walla, and at mile 21.2.

DRAINAGE AREA.--59.6 mi^2.

PERIOD OF RECORD.--August 1913 to September 1917, April to September 1938, October 1939 to September 1976, October 1979 to current year. Maximum discharge and occasional discharge measurements 1977-79.

REVISED RECORDS.--WSP 1398: 1946-48(M), 1950 (M). WSP 1935: 1959, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,995.85 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Corps of Engineers). Prior to Oct. 1, 1938, nonrecording gages at about same site at different datums.

REMARKS.--Estimated daily discharges: Dec. 19, 20, Feb. 3-5. Records good. No regulation. City of Walla Walla diverts about 22 ft^3/s 4.0 mi upstream from station for municipal use. Water temperatures March 1962 to July 1965. Sediment records March 1962 to July 1965.

AVERAGE DISCHARGE.--47 years (water years 1914-17, 1940-76, 1980-85), 97.9 ft^3/s, 70,930 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,240 ft^3/s Dec. 23, 1964, gage height, 19.26 ft; minimum daily, 9.5 ft^3/s Dec. 9, 10, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 31 or April 1, 1931, reached a discharge of about 11,000 ft^3/s, based on slope-area measurement about 900 ft upstream at old city of Walla Walla diversion dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 11	0030	*414	*13.92				

Minimum discharge, 27 ft^3/s Aug. 14-17, 25-31, Sept. 1, 2, 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	29	120	51	41	140	276	219	87	39	34	27
2	30	60	95	48	40	139	366	254	82	38	35	29
3	30	53	79	46	37	115	380	240	78	37	32	29
4	30	46	67	43	35	100	305	182	76	37	31	28
5	30	42	59	43	36	87	244	147	74	36	30	28
6	30	43	53	42	37	78	241	134	91	35	29	33
7	30	46	51	42	39	70	262	130	124	34	28	30
8	29	45	50	41	37	65	291	130	143	33	29	32
9	29	56	88	40	37	67	312	123	122	33	29	33
10	29	57	229	38	36	77	364	121	104	32	30	31
11	40	64	182	37	37	86	378	112	91	31	31	32
12	34	82	136	36	39	90	304	103	83	31	29	32
13	34	146	101	36	36	89	283	103	77	30	28	30
14	33	196	86	36	37	92	308	116	72	31	28	31
15	31	121	78	37	48	103	309	109	68	35	28	34
16	31	88	70	37	54	117	273	122	65	35	28	32
17	30	69	62	37	56	135	226	145	61	35	28	39
18	29	70	56	37	57	158	198	152	58	35	29	35
19	29	71	51	40	64	179	173	148	57	34	29	33
20	29	77	48	47	69	175	143	148	55	33	29	31
21	29	83	51	50	66	184	127	131	53	32	29	31
22	29	81	51	52	80	154	122	128	50	32	29	30
23	29	81	70	52	95	149	145	129	49	32	29	29
24	29	103	81	51	133	214	152	123	47	32	28	29
25	29	98	77	50	165	199	144	109	46	32	28	28
26	45	96	74	48	138	166	133	98	44	31	28	28
27	36	97	69	47	114	141	135	94	43	31	28	28
28	36	150	65	46	110	116	162	91	42	31	28	29
29	33	201	58	44	---	98	181	92	40	31	28	29
30	31	157	58	44	---	118	187	95	39	31	28	48
31	30	---	54	42	---	176	---	85	---	35	28	---
TOTAL	973	2608	2469	1340	1773	3877	7124	4113	2121	1034	905	938
MEAN	31.4	86.9	79.6	43.2	63.3	125	237	133	70.7	33.4	29.2	31.3
MAX	45	201	229	52	165	214	380	254	143	39	35	48
MIN	29	29	48	36	35	65	122	85	39	30	28	27
AC-FT	1930	5170	4900	2660	3520	7690	14130	8160	4210	2050	1800	1860

CAL YR 1984	TOTAL	35952	MEAN	98.2	MAX	603	MIN	29	AC-FT	71310
WTR YR 1985	TOTAL	29275	MEAN	80.2	MAX	380	MIN	27	AC-FT	58070

14015000 MILL CREEK AT WALLA WALLA, WA

LOCATION.--Lat 46°04'35", long 118°16'21", in NE¼NW¼ sec.23, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 200 ft downstream from diversion dam, 1.5 mi east of Walla Walla, and at mile 10.5.

DRAINAGE AREA.--95.7 mi².

PERIOD OF RECORD.--April 1941 to current year.

REVISED RECORDS.--WSP 1288: Drainage area. WSP 1348: 1943, 1945-46.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.49 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Corps of Engineers). April 1941 to June 11, 1941, nonrecording gage, and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good except those below 20 ft³/s, which are poor. Some regulation at diversion dam 200 ft upstream from station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Since Nov. 19, 1941, water has been diverted 1.0 mi upstream into Mill Creek Reservoir for flood control with release of stored water after flood into Russell Creek, and is also diverted as required to replenish losses from seepage and evaporation from small recreation pool maintained in the reservoir. City of Walla Walla diverts water for municipal supply about 11 mi upstream. Other small diversions upstream from station for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft³/s Dec. 28, 1945, gage height, 4.0 ft, site and datum then in use; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 31, April 1, 1931, discharge not determined, was greatest since at least 1913. Discharge about 11,000 ft³/s, based on a slope-area measurement made at old city of Walla Walla diversion dam 10.8 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 564 ft³/s Apr. 3, gage height, 3.40 ft; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	8.2	183	91	53	215	357	201	55	.19	2.7	.00
2	.00	34	142	83	54	225	512	252	55	.49	.02	.00
3	.00	49	113	75	48	191	528	250	48	.00	.02	.00
4	.00	34	93	71	45	165	417	190	44	.00	.06	.00
5	.00	28	77	68	66	137	276	144	44	.27	.16	.00
6	.00	29	69	64	72	117	286	124	49	.66	.08	.00
7	.00	36	55	62	59	105	317	111	88	1.0	.03	.00
8	.00	37	56	61	54	95	345	110	138	.18	.00	.00
9	.00	52	80	61	47	94	371	101	107	.02	.00	.00
10	.00	57	253	58	45	103	435	97	81	.00	.00	.00
11	5.0	63	292	56	45	118	464	93	65	.09	.00	.00
12	5.5	84	237	54	48	121	371	85	54	.02	.00	.00
13	4.2	102	178	52	32	120	333	77	38	.00	.00	.00
14	4.0	178	140	51	35	122	351	102	24	.03	.00	.00
15	2.8	179	124	50	73	131	351	87	12	.02	.00	.00
16	1.6	147	102	49	114	147	235	86	6.7	.00	.00	.00
17	1.4	112	96	49	106	167	94	112	6.1	.00	.00	.00
18	.91	86	84	50	103	127	146	123	5.7	.03	.00	.00
19	.85	77	66	53	109	103	189	121	5.5	.03	.00	.00
20	1.2	88	74	63	144	118	130	127	6.2	.05	.00	.00
21	2.1	104	97	65	131	192	103	112	11	.05	.00	.00
22	1.7	101	81	69	154	240	65	101	12	.05	.00	.00
23	1.1	98	102	72	194	194	77	94	15	.04	.00	.00
24	.49	153	132	72	244	299	140	90	12	.02	.00	.00
25	.71	141	132	69	310	304	171	79	5.7	.00	.00	.00
26	19	124	126	66	250	184	153	66	1.9	.03	.00	.00
27	21	119	123	64	201	128	143	58	.77	.04	.00	.00
28	19	165	118	66	183	128	164	59	1.0	.27	.00	.00
29	15	278	103	58	---	89	182	56	2.3	.35	.00	.00
30	12	228	103	35	---	99	182	68	.01	.04	.00	.00
31	11	---	99	63	---	134	---	54	---	3.9	.00	---
TOTAL	130.56	2991.2	3730	1920	3019	4712	7888	3430	993.88	7.87	3.07	.00
MEAN	4.21	99.7	120	61.9	108	152	263	111	33.1	.25	.10	.00
MAX	21	278	292	91	310	304	528	252	138	3.9	2.7	.00
MIN	.00	8.2	55	35	32	89	65	54	.01	.00	.00	.00
AC-FT	259	5930	7400	3810	5990	9350	15650	6800	1970	16	6.1	.00

CAL YR 1984	TOTAL	40836.41	MEAN	112	MAX	838	MIN	.00	AC-FT	81000
WTR YR 1985	TOTAL	28825.58	MEAN	79.0	MAX	528	MIN	.00	AC-FT	57180

14017000 TOUCHET RIVER AT BOLLES, WA

LOCATION.--Lat 46°16'28", long 118°13'13", on line between secs.7 and 8, T.9 N., R.37 E., Walla Walla County, Hydrologic Unit 17070102, on right bank just downstream from bridge on State Highway 124, 0.4 mi southeast of Bolles, 2.9 mi downstream from Coppei Creek, and at mile 40.1.

DRAINAGE AREA.--361 mi^2.

PERIOD OF RECORD.--February 1924 to October 1929, April 1951 to current year. Monthly discharge only for February and March 1929, published in WSP 1318.

REVISED RECORDS.--WSP 1448: 1952-53(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,150 ft, from topographic map. Prior to Oct. 5, 1929, water-stage recorder at site 0.5 mi upstream at different datum. Apr. 1 to May 6, 1951, October 1968 to September 1974, nonrecording gage.

REMARKS.--No estimated daily discharges. Records good except for Dec. 10 to Mar. 31, which are poor. Diurnal fluctuation and some regulation at low flow caused by operation of flour mill at Waitsburg 3 mi upstream. Numerous small diversions for municipal, domestic, and irrigation use. Chemical analyses October 1973 to September 1975. Sediment records July 1962 to September 1985 (partial-record station).

AVERAGE DISCHARGE.--39 years (water years 1925-29, 1952-85), 232 ft^3/s, 168,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft^3/s Dec. 23, 1964, gage height, 14.06 ft, from rating curve extended above 3,800 ft^3/s on basis of slope-area measurement of peak flow; minimum, 1.4 ft^3/s July 30, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 12	unknown	*1,960	*5.74	No other peak greater than base discharge.			

Minimum discharge, 34 ft^3/s Aug. 26, 27, 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	65	289	170	90	586	724	355	185	63	53	36
2	47	100	237	126	75	499	885	419	186	60	53	39
3	48	128	199	110	63	429	931	441	167	59	48	43
4	48	116	173	105	60	385	781	382	158	57	47	41
5	49	99	155	105	85	329	646	318	154	53	55	40
6	51	92	135	105	120	310	610	283	175	50	48	45
7	49	95	126	105	133	292	596	263	265	50	45	55
8	48	91	122	108	117	264	610	263	290	50	43	49
9	47	100	198	110	118	257	631	252	242	45	42	58
10	46	104	574	110	115	268	699	243	210	44	42	58
11	53	112	411	115	440	274	780	233	187	45	46	56
12	63	140	357	118	1500	283	667	218	167	45	43	64
13	64	166	285	118	450	281	590	206	157	46	40	56
14	65	287	257	117	310	292	601	223	149	45	40	57
15	60	199	264	116	1000	310	632	209	139	43	38	73
16	58	163	234	112	650	345	615	215	131	41	38	65
17	58	143	204	109	490	403	528	247	125	41	39	80
18	56	133	167	112	471	466	450	270	123	41	38	76
19	57	142	110	119	469	499	432	284	109	40	38	67
20	57	149	92	132	542	514	363	298	94	39	39	61
21	58	176	95	136	512	565	339	285	91	41	43	60
22	57	157	200	137	729	499	313	273	86	40	42	58
23	58	153	275	137	769	514	337	281	83	38	39	57
24	57	228	269	137	1030	746	322	290	81	38	37	56
25	58	191	248	137	939	618	307	265	79	38	36	53
26	88	171	242	134	763	529	287	236	76	37	35	54
27	90	190	243	129	433	499	273	217	73	37	36	54
28	84	278	236	128	456	403	305	232	72	37	38	52
29	77	433	220	124	---	368	334	212	69	38	37	52
30	70	360	228	104	---	406	337	220	66	37	35	52
31	67	---	204	92	---	551	---	194	---	42	36	---
TOTAL	1835	4961	7049	3717	12929	12984	15925	8327	4189	1380	1289	1667
MEAN	59.2	165	227	120	462	419	531	269	140	44.5	41.6	55.6
MAX	90	433	574	170	1500	746	931	441	290	63	55	80
MIN	46	65	92	92	60	257	273	194	66	37	35	36
AC-FT	3640	9840	13980	7370	25640	25750	31590	16520	8310	2740	2560	3310

CAL YR 1984	TOTAL	83444	MEAN	228	MAX	1030	MIN	34	AC-FT	165500
WTR YR 1985	TOTAL	76252	MEAN	209	MAX	1500	MIN	35	AC-FT	151200

14018500 WALLA WALLA RIVER NEAR TOUCHET, WA

LOCATION.--Lat 46°01'40", long 118°43'43", in NW¼SE¼ sec.6, T.6 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.8 mi upstream from Gardena Creek, 2.8 mi southwest of Touchet, 3.4 mi downstream from Touchet River, and at mile 18.2.

DRAINAGE AREA.--1,657 mi^2.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 405 ft, from topographic map. Prior to Nov. 27, 1951, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Feb. 1-5, Feb. 16-26, Mar. 1-5, July 21-24. Records good except for periods of ice effect Feb. 1-5, and no gage-height record Feb. 16-26, Mar. 1-5, July 21-24, which are poor. Many diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--34 years, 599 ft^3/s, 434,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft^3/s Dec. 22, 1964, gage height, 18.90 ft, from rating curve extended above 15,000 ft^3/s on basis of slope-area measurement of peak flow; no flow July 30 to Aug. 8, Aug. 12, 13, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 12	0430	*12,200	*15.54	Feb. 15	2130	4,230	9.88

Minimum discharge, 6.4 ft^3/s July 25, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	131	1070	675	360	1400	1520	893	334	45	27	9.2
2	55	126	860	672	335	1200	2170	1110	392	47	51	11
3	57	342	737	569	320	1100	2440	1210	331	49	49	20
4	54	332	637	538	310	1050	2260	1080	293	42	40	21
5	54	274	575	514	360	980	1790	843	279	37	37	17
6	64	249	527	516	420	859	1640	711	299	37	35	14
7	60	252	513	489	438	792	1630	608	496	32	29	15
8	54	253	500	502	452	732	1700	578	655	28	25	32
9	56	269	538	495	427	704	1800	570	595	25	24	37
10	45	300	1440	463	432	727	1980	543	505	21	23	48
11	40	323	1630	449	1970	768	2350	525	412	17	24	48
12	49	404	1260	450	8070	787	2120	484	338	15	33	48
13	72	510	1060	448	1890	766	1850	448	287	15	30	60
14	72	822	904	441	1000	774	1810	476	255	15	21	55
15	80	746	1090	439	1880	825	1880	492	217	15	19	61
16	70	564	812	438	2200	890	1810	468	190	15	16	78
17	71	468	730	425	1500	982	1530	526	174	12	13	93
18	62	421	633	427	1200	1050	1270	614	146	12	12	102
19	63	408	516	440	1100	1050	1200	636	118	13	12	103
20	66	441	557	495	1500	1080	1000	642	100	13	10	102
21	66	535	688	533	1250	1260	847	668	88	12	10	90
22	68	553	915	530	1400	1250	770	584	87	10	12	82
23	69	523	1270	528	1650	1090	733	551	80	9.2	14	74
24	74	781	1100	523	1550	1530	787	537	80	8.5	12	69
25	81	766	916	513	1850	1550	726	514	79	7.0	11	66
26	86	669	867	503	1650	1320	676	455	76	8.2	10	68
27	170	629	866	491	1380	1140	641	388	67	8.3	10	69
28	162	713	828	484	1250	990	670	369	63	8.2	11	70
29	145	1160	748	480	---	849	775	351	56	8.0	10	72
30	128	1200	769	412	---	787	828	422	50	7.3	9.1	82
31	120	---	747	399	---	1090	---	374	---	9.6	9.7	---
TOTAL	2373	15164	26303	15281	38144	31392	43203	18670	7142	601.3	648.8	1716.2
MEAN	76.5	505	848	493	1362	1013	1440	602	238	19.4	20.9	57.2
MAX	170	1200	1630	675	8070	1550	2440	1210	655	49	51	103
MIN	40	126	500	399	310	704	641	351	50	7.0	9.1	9.2
AC-FT	4710	30080	52170	30310	75660	62270	85690	37030	14170	1190	1290	3400

CAL YR 1984 TOTAL 266131 MEAN 727 MAX 4090 MIN 11 AC-FT 527900
WTR YR 1985 TOTAL 200638.3 MEAN 550 MAX 8070 MIN 7.0 AC-FT 398000

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi downstream from Mill Creek, 2.6 mi downstream from The Dalles Dam, and at mile 188.9.

DRAINAGE AREA.--237,000 mi², approximately.

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept 30, 1968, water-stage recorder at site 0.4 mi upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Jan. 31, Feb. 11, 12, Apr. 19-22, Sept. 8-17. Records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--107 years, 193,500 ft³/s, 140,200,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since 1858), 1,240,000 ft³/s June 6, 1894, elevation, 106.5 ft; minimum (since 1878), 12,100 ft³/s Apr. 16, 1968 (due to closure of John Day dam, recorded by AVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 295,000 ft³/s May 6; maximum elevation, 80.8 ft May 6; minimum daily discharge, 71,900 ft³/s July 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108000	137000	175000	167000	237000	210000	178000	222000	244000	145000	101000	93800
2	150000	146000	179000	204000	187000	206000	197000	243000	228000	162000	111000	86600
3	151000	135000	174000	195000	197000	183000	164000	253000	268000	181000	104000	89700
4	166000	104000	176000	193000	244000	191000	185000	216000	240000	138000	88400	98700
5	137000	117000	158000	182000	260000	174000	184000	214000	188000	138000	113000	99000
6	99400	126000	173000	169000	212000	164000	184000	295000	196000	132000	109000	122000
7	90400	128000	168000	205000	199000	173000	160000	263000	218000	127000	97700	90000
8	104000	132000	153000	206000	212000	189000	159000	246000	205000	120000	114000	88500
9	115000	156000	156000	211000	210000	160000	168000	224000	225000	115000	90800	97800
10	119000	156000	181000	211000	189000	173000	188000	257000	239000	129000	87600	115000
11	137000	126000	168000	206000	196000	213000	228000	262000	239000	123000	73800	115000
12	135000	123000	165000	211000	177000	159000	221000	225000	220000	120000	103000	114000
13	117000	132000	167000	208000	214000	142000	203000	271000	196000	127000	88800	110000
14	123000	130000	159000	212000	229000	150000	197000	254000	180000	90300	109000	87000
15	140000	170000	152000	206000	229000	164000	204000	226000	189000	88200	114000	90000
16	139000	175000	154000	205000	211000	158000	231000	223000	178000	76500	110000	98400
17	106000	166000	198000	213000	179000	144000	236000	225000	186000	119000	90900	109000
18	117000	142000	175000	202000	191000	149000	285000	225000	186000	137000	78200	105000
19	163000	145000	150000	229000	215000	167000	282000	228000	215000	129000	105000	110000
20	109000	140000	203000	201000	210000	189000	266000	239000	195000	122000	85000	130000
21	130000	170000	172000	203000	217000	189000	281000	239000	203000	99800	100000	99200
22	150000	110000	171000	239000	200000	201000	250000	256000	176000	91400	101000	92500
23	143000	142000	135000	216000	192000	203000	173000	231000	161000	101000	91500	115000
24	128000	140000	119000	247000	157000	182000	198000	270000	164000	114000	72500	129000
25	123000	143000	115000	235000	202000	198000	262000	237000	153000	105000	85700	139000
26	165000	132000	144000	195000	184000	222000	242000	260000	153000	90600	92000	128000
27	147000	146000	148000	198000	206000	178000	187000	222000	154000	79700	99500	137000
28	117000	142000	149000	210000	214000	174000	176000	254000	137000	71900	113000	95100
29	109000	141000	168000	201000	---	181000	244000	260000	123000	95400	88100	92100
30	130000	178000	152000	185000	---	162000	230000	250000	128000	77200	83000	118000
31	143000	---	135000	204000	---	137000	---	239000	---	84100	86800	---
TOTAL	4010800	4230000	4992000	6370000	5770000	5485000	6363000	7529000	5787000	3529100	2987300	3194400
MEAN	129400	141000	161000	205500	206100	176900	212100	242900	192900	113800	96360	106500
MAX	166000	178000	203000	247000	260000	222000	285000	295000	268000	181000	114000	139000
MIN	90400	104000	115000	167000	157000	137000	159000	214000	123000	71900	72500	86600
AC-FT	7955000	839 000	9902000	12635000	11445000	10879000	12621000	14934000	11479000	7000000	5925000	6336000

CAL YR 1984 TOTAL 76719200 MEAN 209600 MAX 396000 MIN 90400 AC-FT 152173000
WTR YR 1985 TOTAL 60247600 MEAN 165100 MAX 295000 MIN 71900 AC-FT 119501000

14113000 KLICKITAT RIVER NEAR PITT, WA
(National stream quality accounting network station)

LOCATION.--Lat 45°45'24", long 121°12'32", in SW¼ sec.8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, on left bank 2.8 mi south of Pitt, 4.8 mi southwest of Klickitat, 5.3 mi upstream from Silvias Creek, and at mile 7.0.

DRAINAGE AREA.--1,297 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Several small diversions upstream from station for irrigation of about 7,500 acres, mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal with a maximum flow of 74.5 ft³/s Aug. 13, 1974, which at times diverts the entire flow of Hellroaring Creek (tributary to Big Muddy Creek). No regulation.

AVERAGE DISCHARGE.--59 years (water years 1910-11, 1929-85), 1,654 ft³/s, 1,198,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s Jan. 15, 1974, gage height, 17.12 ft from high-water mark in well, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement at gage height 14.34 ft; minimum, 412 ft³/s Jan. 16, 1979, gage height, 3.81 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	2100	*4,300	*7.11	No other peak greater than base discharge.			

Minimum discharge, 598 ft³/s Aug. 30, 31, Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	765	819	1320	1120	765	1500	1810	1620	1920	994	722	612
2	764	1040	1180	1070	741	1430	1990	1790	1950	965	708	612
3	770	1320	1100	991	701	1360	2210	2010	1790	982	702	612
4	780	1150	1040	941	650	1460	2180	1970	1800	989	720	617
5	768	1020	1010	932	747	1420	2130	1840	1780	962	714	642
6	766	960	924	908	769	1380	2210	1750	1860	918	694	707
7	775	935	957	892	782	1320	2260	1710	3490	911	701	669
8	790	912	1020	884	767	1250	2240	1660	3610	932	673	636
9	818	917	1010	860	749	1220	2320	1610	2610	920	674	647
10	815	1080	1180	838	752	1210	2500	1570	2210	918	659	763
11	814	1150	1060	819	788	1220	2610	1530	2010	897	658	741
12	805	1370	1050	807	861	1230	2660	1460	1950	867	661	700
13	893	1440	1030	809	872	1230	2610	1440	1950	846	664	710
14	873	1380	1040	809	861	1240	2660	1510	1860	825	658	680
15	869	1190	1170	808	919	1270	2710	1480	1800	822	667	669
16	845	1110	1100	809	1110	1320	2660	1600	1690	816	669	661
17	830	1070	1070	803	1160	1370	2560	1980	1600	794	662	668
18	818	1060	932	801	1060	1440	2400	2280	1550	791	664	681
19	815	1030	829	799	1070	1520	2210	2510	1520	797	651	665
20	818	1090	876	800	1180	1570	2030	2620	1480	796	647	656
21	809	1080	982	805	1630	1630	1900	2530	1460	802	627	653
22	802	1020	1210	804	2410	1590	1790	2510	1390	792	621	649
23	302	1010	1360	798	1960	1670	1740	2490	1290	777	627	645
24	809	1030	1240	787	1800	1800	1640	2600	1210	779	639	645
25	829	1010	1170	782	1680	1670	1540	2620	1170	762	647	649
26	912	966	1130	776	1560	1660	1480	2490	1140	766	658	645
27	872	1040	1130	776	1460	1700	1470	2340	1130	757	642	640
28	862	1200	1110	776	1430	1640	1610	2190	1110	743	627	631
29	843	1550	1110	746	---	1560	1610	2110	1090	755	626	626
30	830	1520	1390	731	---	1550	1590	1980	1050	764	622	628
31	829	---	1250	754	---	1670	---	1900	---	749	611	---
TOTAL	25390	33469	33980	26035	31234	45100	63330	61700	52470	26188	20515	19759
MEAN	819	1116	1096	840	1116	1455	2111	1990	1749	845	662	659
MAX	912	1550	1390	1120	2410	1800	2710	2620	3610	994	722	763
MIN	764	819	829	731	650	1210	1470	1440	1050	743	611	612
AC-FT	50360	66390	67400	51640	61950	89460	125600	122400	104100	51940	40690	39190

CAL YR 1984 TOTAL 620520 MEAN 1695 MAX 4830 MIN 764 AC-FT 1231000
WTR YR 1985 TOTAL 439170 MEAN 1203 MAX 3610 MIN 611 AC-FT 871100

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-70, 1973, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1950 to September 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
NOV 06...	1320	949	64	7.00	6.0	3.3	12.5	103	K6	--	32
FEB 13...	1000	814	94	7.40	2.0	3.8	14.0	101	K6	220	39
MAY 15...	1050	1500	68	7.40	10.5	2.4	11.3	101	K2	25	28
AUG 20...	1445	645	81	7.90	14.5	3.0	9.9	98	K4	56	32

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV 06...	--	7.1	3.5	4.3	21	0.3	1.7	49	3.4	1.5	<0.1
FEB 13...	--	8.8	4.1	4.4	19	0.3	1.6	40	3.0	1.6	<0.1
MAY 15...	--	6.9	2.7	3.5	20	0.3	1.4	37	3.0	1.0	<0.1
AUG 20...	--	7.2	3.4	4.4	22	0.3	1.8	45	2.4	0.8	<0.1

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
NOV 06...	30	67	81	0.09	172	<0.10	0.02	0.2	0.03	0.02	0.04
FEB 13...	32	72	80	0.1	158	0.10	0.02	<0.2	0.03	0.02	0.03
MAY 15...	27	56	68	0.08	227	<0.10	0.03	<0.2	0.03	0.02	0.02
AUG 20...	30	69	77	0.09	120	<0.10	0.03	0.2	0.05	0.02	0.03

K - Results based on colony count outside the acceptable range (non-ideal colony count).

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV											
06...	30	<1	12	<0.5	<1	<1	<3	15	62	5	<4
FEB											
13...	90	<1	15	<0.5	<1	<1	<3	2	96	1	<4
MAY											
15...	20	<1	7	<0.5	<1	<1	<3	2	36	2	<4
AUG											
20...	10	<1	6	<0.5	1	<1	<3	1	33	<1	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV											
06...	4	<0.1	<10	1	<1	<1	41	<6	11	6	15
FEB											
13...	6	<0.1	<10	1	<1	<1	49	<6	12	6	13
MAY											
15...	5	<0.1	<10	1	<1	<1	34	<6	14	10	41
AUG											
20...	4	<0.1	<10	<1	<1	<1	38	<6	8	6	10

14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WA

LOCATION.--Lat 45°45'08", long 121°31'33", in NW¼NW¼ sec.14, T.3 N., R.10 E., Skamania County, Hydrologic Unit 17070105, on right bank 300 ft downstream from bridge, 1,000 ft downstream from Pacific Power & Light Co.'s Condit powerplant, 1.7 mi north of Underwood, and at mile 1.9.

DRAINAGE AREA.--386 mi².

PERIOD OF RECORD.--October 1912 to February 1913 (published as "at Condit Dam, near Underwood"), March 1915 to September 1930, September 1935 to current year.

REVISED RECORDS.--WSP 484: 1915-17. WSP: 1348 1936-41(M). WSP 1638: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 112.96 ft above National Geodetic Vertical Datum of 1929. Prior to March 1913, reference point at dam 1 mi upstream at different datum. March 1915, to July 16, 1918, water-stage recorder at site 200 ft upstream at datum 3.24 ft higher, and July 17, 1918, to Sept. 30, 1930, at datum 2.24 ft higher than present datum.

REMARKS.--No estimated daily discharges. Records excellent. Diversions for irrigation of about 4,500 acres in Trout Lake area. Low and medium flows regulated by powerplant of Pacific Power & Light Co. Water quality records: 1960-70, 1976-June 1980. Water temperatures: July 1968 to August 1970.

AVERAGE DISCHARGE.--65 years (water years 1916-30, 1936-85), 1,131 ft³/s, 819,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s Jan. 15, 1974, gage height, 12.85 ft, from rating curve extended above 6,000 ft³/s; practically no flow at times when powerplant is shut down; minimum daily, 158 ft³/s Jan. 17, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,310 ft³/s June 10, gage height, 6.22 ft; minimum, 53 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	614	614	1020	916	631	924	1250	1200	1360	894	713	552
2	633	821	922	868	627	898	1330	1250	1520	886	677	548
3	627	1060	861	825	599	862	1410	1400	1390	872	707	562
4	606	1040	822	807	555	876	1410	1390	1350	878	695	563
5	616	907	737	772	610	872	1340	1310	1340	865	682	570
6	616	811	746	775	626	832	1420	1310	1450	816	671	632
7	587	806	747	753	643	820	1460	1260	2480	809	678	630
8	624	803	761	740	636	792	1460	1210	2580	808	687	619
9	615	755	782	731	630	778	1500	1200	1950	838	709	628
10	605	897	892	714	616	788	1600	1170	1670	807	684	663
11	623	980	814	699	632	795	1670	1150	1520	797	665	661
12	670	1090	825	688	668	805	1780	1120	1470	786	671	621
13	730	1200	801	682	663	803	1770	1110	1440	794	655	607
14	710	1190	802	681	661	815	1770	1190	1370	768	636	629
15	697	1030	903	679	666	839	1900	1160	1340	764	615	642
16	640	931	846	687	675	836	1790	1240	1270	764	629	602
17	638	881	821	676	707	865	1710	1440	1210	750	615	606
18	621	865	772	676	668	913	1620	1550	1190	751	611	635
19	603	904	712	676	668	918	1440	1710	1190	707	604	591
20	606	897	707	675	678	952	1270	1720	1160	741	595	587
21	616	860	781	676	683	999	1310	1660	1130	730	593	584
22	605	814	829	667	804	988	1220	1590	1090	701	607	581
23	602	801	879	660	866	1070	1230	1600	1040	716	581	568
24	608	866	857	645	989	1140	1200	1640	989	703	590	548
25	632	814	849	650	1010	1100	1140	1670	957	693	601	572
26	657	788	820	642	948	1070	1090	1600	942	707	602	539
27	665	925	845	636	902	1100	1130	1530	959	705	586	558
28	652	1020	823	641	895	1070	1170	1460	947	698	571	529
29	633	1140	907	635	---	1010	1170	1440	936	672	582	547
30	611	1160	1080	617	---	1040	1150	1440	914	701	563	524
31	608	---	997	618	---	1150	---	1360	---	690	559	---
TOTAL	19570	27670	25960	21807	19956	28720	42710	43080	40154	23811	19634	17698
MEAN	631	922	837	703	713	926	1424	1390	1338	768	633	590
MAX	730	1200	1080	916	1010	1150	1900	1720	2580	894	713	663
MIN	587	614	707	617	555	778	1090	1110	914	672	559	524
AC-FT	38820	54880	51490	43250	39580	56970	84720	85450	79650	47230	38940	35100

CAL YR 1984 TOTAL 426415 MEAN 1165 MAX 2770 MIN 587 AC-FT 845800
WTR YR 1985 TOTAL 330770 MEAN 906 MAX 2580 MIN 524 AC-FT 656100

14128910 COLUMBIA RIVER AT WARRENDALE, OR
(National stream quality accounting network station)

LOCATION.--Lat 45°36'45", long 122°01'35", in NE¼SE¼ sec.35, T.2 N., R.6 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.1 mi downstream from Tumult Creek, 1.0 mi west of Warrendale, 5.1 mi downstream from Bonneville Dam, and at mile 141.0.

DRAINAGE AREA.--240,000 mi², approximately.

WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height recorded, 30.91 ft June 20, 1972; minimum, 4.49 ft July 10, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 17.78 ft May 6; minimum, 5.03 ft Aug. 24.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.05	6.29	6.92	9.22	7.45	8.45	14.48	13.74	14.32	10.78	9.26	9.96
2	10.34	7.30	8.96	12.35	8.68	10.56	13.73	13.09	13.34	12.53	10.69	11.48
3	10.17	9.07	9.69	12.70	12.01	12.34	13.39	12.93	13.15	12.15	11.45	11.76
4	10.68	9.27	10.10	12.21	9.96	11.32	12.95	11.91	12.47	11.73	11.13	11.37
5	10.42	8.12	9.63	10.27	9.49	9.92	12.48	9.44	11.04	11.89	11.45	11.72
6	8.09	6.52	7.26	10.92	10.05	10.44	11.93	10.95	11.28	11.46	9.78	10.60
7	7.51	6.40	6.94	11.15	10.33	10.64	11.83	11.58	11.73	13.16	10.60	11.59
8	8.56	6.03	7.52	11.14	10.27	10.60	11.57	11.05	11.29	13.36	12.91	13.07
9	8.82	6.92	8.12	11.68	10.74	11.19	12.00	10.73	11.22	13.31	12.67	12.89
10	9.14	8.00	8.66	12.78	11.33	11.82	12.86	11.61	12.10	13.06	12.44	12.70
11	10.11	7.93	9.08	12.72	11.39	11.96	12.84	12.13	12.43	12.76	12.39	12.58
12	10.09	9.52	9.82	11.92	11.07	11.37	12.75	12.15	12.41	12.80	11.80	12.37
13	9.89	8.41	9.07	12.18	11.59	11.84	12.75	12.03	12.30	11.93	11.13	11.56
14	9.81	8.37	8.96	12.18	11.31	11.67	12.43	11.77	12.05	12.95	11.94	12.46
15	9.80	9.10	9.37	12.70	10.94	11.72	12.73	10.20	11.69	13.07	12.57	12.82
16	9.54	8.86	9.15	13.71	12.40	13.20	13.12	10.18	11.67	12.64	11.91	12.37
17	9.31	7.14	8.17	12.82	10.46	11.73	12.80	11.39	12.02	13.22	12.55	12.89
18	7.63	6.62	7.14	12.87	10.94	11.80	12.70	11.37	12.09	13.42	12.95	13.21
19	9.91	7.65	8.79	11.98	11.07	11.55	11.48	10.65	11.16	14.26	12.56	13.19
20	10.00	7.21	8.51	11.92	10.90	11.36	13.79	10.31	11.66	14.41	12.67	13.52
21	9.02	7.05	7.91	12.81	10.83	11.85	13.11	11.83	12.50	13.09	12.72	12.87
22	10.15	8.88	9.78	12.68	9.40	10.79	12.98	11.86	12.29	14.40	12.62	13.40
23	10.26	9.01	9.75	12.32	8.48	10.05	12.35	10.77	11.40	14.41	13.39	13.90
24	10.18	9.01	9.75	12.25	10.86	11.39	11.17	9.93	10.45	13.98	13.67	13.80
25	9.89	7.94	8.63	12.13	10.81	11.46	9.95	8.55	9.11	14.73	13.55	14.07
26	12.46	9.78	10.92	12.14	10.68	11.13	10.77	8.80	9.82	14.17	12.18	12.80
27	12.30	10.76	11.37	12.26	9.66	10.40	10.92	10.39	10.67	12.69	11.38	11.93
28	11.35	9.14	9.89	13.10	11.89	12.45	11.42	10.45	10.94	13.48	12.30	12.72
29	9.81	8.21	9.12	13.37	10.89	12.33	11.70	11.02	11.37	13.23	11.98	12.58
30	9.50	8.32	8.79	14.39	13.42	14.06	12.10	11.60	11.86	12.19	11.17	11.79
31	9.89	9.13	9.54	---	---	---	11.93	9.36	10.90	12.70	11.31	11.94
MONTH	12.46	6.03	8.95	14.39	7.45	11.38	14.48	8.55	11.70	14.73	9.26	12.45

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14.67	12.69	13.84	14.11	12.07	12.87	12.65	10.24	11.17	15.54	13.84	14.84
2	14.07	11.46	12.51	13.65	12.49	13.06	13.88	12.61	13.29	15.35	13.74	14.48
3	12.72	11.14	11.86	12.89	11.51	12.42	13.86	11.69	12.66	16.06	14.27	14.99
4	15.07	12.11	13.79	12.89	10.80	12.11	13.65	11.82	12.92	16.34	13.93	15.25
5	15.51	14.41	14.84	12.85	11.95	12.35	13.74	12.48	13.40	14.76	13.53	13.89
6	15.28	13.02	13.88	11.89	10.98	11.46	13.68	12.32	12.98	17.78	14.74	16.22
7	13.42	12.39	12.83	12.49	10.63	11.41	13.16	11.77	12.42	17.56	16.14	17.21
8	13.92	13.06	13.53	13.24	11.02	11.80	12.12	11.36	11.67	16.79	15.53	16.24
9	13.95	13.21	13.62	13.30	10.38	12.10	12.27	11.36	11.86	15.51	13.95	14.80
10	13.80	12.73	13.45	12.00	9.53	10.71	13.21	12.19	12.71	15.29	14.02	14.61
11	13.29	12.70	12.95	13.50	12.04	13.10	15.40	13.19	14.14	16.18	15.25	15.59
12	13.14	12.29	12.77	13.17	10.22	12.00	15.59	14.90	15.28	16.24	14.76	15.53
13	13.19	12.20	12.68	10.42	9.09	9.77	15.16	13.32	13.98	15.62	14.74	15.09
14	14.69	12.92	13.64	10.09	9.19	9.56	13.42	13.03	13.23	16.04	14.92	15.48
15	15.13	14.60	14.85	11.03	10.06	10.67	14.00	12.68	13.44	15.33	14.34	14.91
16	14.58	13.47	14.05	10.92	10.00	10.42	15.33	13.27	14.38	14.44	12.83	13.45
17	13.46	12.48	13.06	10.80	9.85	10.17	15.63	14.86	15.08	14.34	13.80	14.14
18	12.94	11.97	12.36	10.15	9.54	9.92	17.20	15.59	16.23	14.45	13.19	13.74
19	14.11	12.68	13.03	12.43	9.54	10.42	17.25	16.58	17.00	14.69	13.89	14.30
20	14.20	13.69	14.00	12.74	11.80	12.33	17.18	15.01	16.26	15.68	14.30	15.09
21	13.93	13.39	13.60	13.05	11.73	12.52	17.40	16.08	16.75	15.09	14.37	14.75
22	13.72	13.32	13.48	13.68	12.30	12.95	17.39	15.71	16.17	16.19	14.16	15.11
23	13.61	12.64	13.12	13.93	12.56	13.24	16.21	12.80	14.14	15.87	14.73	15.13
24	12.74	10.79	11.89	14.04	12.68	13.11	13.79	11.71	12.59	16.13	14.41	15.33
25	13.07	10.98	12.12	13.99	12.36	13.39	16.26	13.79	14.69	15.84	14.78	15.23
26	13.66	11.36	12.99	15.23	13.72	14.29	16.66	14.51	15.52	15.66	14.99	15.33
27	14.29	11.57	12.80	14.67	12.21	13.09	14.97	12.39	14.19	15.54	14.08	14.84
28	14.17	11.72	13.14	13.25	12.01	12.60	12.94	11.86	12.19	15.34	14.30	14.70
29	---	---	---	12.16	11.44	11.91	14.70	12.93	14.07	15.99	15.21	15.51
30	---	---	---	11.75	10.82	11.41	14.26	13.85	14.09	16.07	15.61	15.86
31	---	---	---	11.03	10.42	10.80	---	---	---	15.61	14.90	15.23
MONTH	15.51	10.79	13.24	15.23	9.09	11.87	17.40	10.24	13.95	17.78	12.83	15.06

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.02	14.75	14.89	9.95	8.93	9.37	8.10	5.66	7.18	7.15	5.90	6.52
2	15.56	14.93	15.34	11.39	8.70	10.13	8.61	7.43	7.91	7.06	5.82	6.52
3	17.09	14.90	15.59	12.09	11.18	11.66	8.42	7.38	7.89	7.05	5.89	6.53
4	16.79	15.28	15.86	11.18	9.42	10.43	8.32	7.11	7.57	7.03	5.93	6.37
5	15.42	12.75	13.89	9.80	8.78	9.33	7.85	6.51	7.15	7.71	6.00	6.44
6	13.17	12.39	12.94	9.43	8.60	9.01	7.87	6.64	7.12	8.25	7.63	7.96
7	16.09	12.54	14.38	9.01	8.32	8.74	7.92	7.01	7.37	8.13	6.05	6.98
8	15.65	14.59	15.21	8.88	7.33	8.20	8.02	5.50	6.96	7.14	5.40	6.09
9	15.61	13.87	14.68	8.00	7.57	7.77	6.37	5.40	5.85	7.21	5.62	6.73
10	15.88	14.30	15.15	8.39	7.39	7.90	6.81	5.49	6.04	8.04	6.78	7.62
11	16.07	14.50	15.27	8.22	7.68	7.95	6.60	5.55	5.99	7.66	6.44	7.06
12	15.54	13.48	14.54	8.67	7.69	8.31	6.82	5.66	6.11	8.50	6.18	7.60
13	13.45	12.67	13.03	8.32	6.93	7.61	6.95	5.68	6.27	8.63	7.57	8.06
14	13.03	11.89	12.39	7.68	6.49	7.07	7.72	6.22	7.15	8.56	6.71	7.64
15	12.98	11.44	12.16	7.35	6.16	6.76	8.41	6.93	7.80	8.45	6.28	7.46
16	12.48	11.39	12.07	7.73	5.97	6.82	8.13	6.65	7.42	8.67	6.68	7.63
17	12.38	11.56	12.03	8.39	5.97	7.31	8.16	6.39	7.16	8.76	6.94	8.00
18	12.49	10.83	11.61	8.85	6.81	8.16	7.63	5.64	6.66	9.45	7.67	8.57
19	13.81	12.49	13.25	9.18	7.75	8.62	8.10	5.63	6.86	9.37	7.93	8.65
20	13.42	11.80	12.55	9.23	7.92	8.72	8.13	6.08	7.16	8.64	7.45	7.95
21	13.12	11.52	12.40	8.95	6.86	7.85	8.24	5.88	6.81	8.84	6.44	7.40
22	13.20	11.59	12.12	8.75	6.34	7.54	7.62	6.19	6.75	7.59	6.08	6.69
23	11.62	10.12	10.87	7.40	6.05	6.89	7.48	5.81	6.41	7.59	6.32	7.30
24	11.54	9.80	10.62	7.44	6.36	6.74	7.51	5.03	6.18	8.33	7.45	7.93
25	10.63	9.72	10.03	7.90	6.70	7.39	6.85	5.11	5.80	8.80	7.96	8.35
26	10.39	9.58	10.00	7.29	5.30	6.35	6.87	5.14	6.30	9.41	8.33	8.81
27	10.39	9.71	9.98	6.93	5.29	5.98	7.65	6.36	6.94	9.34	8.19	8.88
28	9.89	8.98	9.43	7.00	5.20	5.96	7.64	6.50	7.18	8.76	6.65	7.48
29	10.04	8.86	9.36	7.50	5.16	6.79	7.86	6.42	7.13	7.48	6.24	6.77
30	9.87	8.72	9.32	7.66	5.87	6.64	7.12	5.69	6.41	8.52	6.49	7.46
31	---	---	---	7.60	5.22	6.36	7.16	5.93	6.52	---	---	---
MONTH	17.09	8.72	12.70	12.09	5.16	7.88	8.61	5.03	6.84	9.45	5.40	7.45
YEAR	17.78	5.03	11.10									

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to current year.
WATER TEMPERATURES: October 1975 to current year.

INSTRUMENTATION.--Specific conductance and temperature recorders since October 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 242 microsiemens May 15, 1977; minimum, 95 microsiemens June 26, 27, 1982.
WATER TEMPERATURES: Maximum, 22.5°C Aug. 17, 18, 1977, Aug. 11, 1980; minimum recorded, 0.0°C many days in January and February, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 225 microsiemens Dec. 9; minimum, 116 microsiemens June 7, 8.
WATER TEMPERATURES: Maximum recorded, 22.0°C July 28-30; minimum, 1.5°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT											
16...	1215	139000	183	8.10	14.0	9.5	K10	42	76	7	21
JAN											
24...	1200	247000	201	7.90	3.5	14.1	K1	K8	90	11	25
APR											
17...	1130	236000	207	8.00	10.0	11.5	K3	K7	89	11	24
JUL											
25...	1015	105000	128	7.90	21.0	8.5	K7	25	57	8	16

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT											
16...	5.7	8.7	1.4	69	13	4.3	.20	.040	.20	.20	.020
JAN											
24...	6.6	7.3	1.3	79	17	4.1	.20	.040	.32	.20	.030
APR											
17...	6.9	10	1.8	78	17	5.8	.20	.050	.65	.50	.020
JUL											
25...	4.0	4.7	1.1	49	9.7	2.3	.10	.030	<.10	<.20	<.010

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
16...	.020	.030	10	109	110	40900	2.0	11	4130	69
JAN										
24...	.020	.030	11	115	120	76700	1.9	5	3330	85
APR										
17...	.030	.040	16	131	130	83500	11	24	15300	72
JUL										
25...	.010	.040	6.4	70	74	19800	2.4	--	--	--

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT 16...	20	1	36	1.0	1	<1	<3	<1	8	2
JAN 24...	10	2	38	<.5	<1	1	<3	2	9	<1
APR 17...	100	1	37	2.4	<1	<1	<3	3	55	4
JUL 25...	20	<1	34	<.5	<1	<1	<3	5	9	1

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 16...	7	3	<.1	<10	<1	<1	<1	110	<6	11
JAN 24...	8	<1	<.1	<10	1	<1	<1	110	<6	18
APR 17...	4	4	<.1	<10	3	<1	1	120	<6	7
JUL 25...	<4	1	<.1	<10	1	<1	<1	70	<6	10

K - Results based on colony count outside acceptable range (non-ideal colony count).

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	173	192	188	193	185	193	167	124	127	134	151
2	171	168	196	186	192	186	198	165	124	126	135	150
3	172	164	203	186	190	187	198	161	125	125	135	150
4	172	164	202	187	187	188	198	160	125	125	135	149
5	175	166	201	188	184	189	200	158	128	123	136	150
6	174	171	200	190	186	187	203	156	123	123	137	150
7	173	175	209	195	191	185	203	157	119	122	136	150
8	172	175	218	203	191	183	200	158	118	123	136	150
9	175	177	224	209	190	185	196	158	118	124	137	151
10	180	178	221	210	188	188	190	158	118	124	137	151
11	182	181	210	211	188	190	188	158	117	125	138	152
12	186	184	202	213	188	189	191	158	118	125	139	153
13	186	189	201	206	190	188	199	158	119	124	140	154
14	184	194	203	195	192	185	204	159	119	124	141	156
15	183	196	205	193	192	182	203	158	120	124	142	157
16	184	196	207	193	185	182	202	157	120	124	143	157
17	184	195	201	191	180	185	203	153	119	125	144	157
18	183	199	195	194	179	186	205	151	120	125	143	157
19	181	205	192	197	181	186	209	147	120	127	143	157
20	178	209	192	201	183	186	218	144	123	126	143	158
21	176	213	196	203	187	187	221	142	125	126	144	158
22	176	215	199	199	191	186	212	139	126	127	145	159
23	175	213	196	195	190	185	203	137	128	126	147	162
24	176	210	194	197	191	187	198	134	130	127	148	160
25	177	211	193	198	189	189	192	132	137	128	148	161
26	178	215	194	198	186	190	183	130	137	129	149	162
27	179	219	195	197	185	187	180	129	134	130	151	166
28	177	215	195	197	184	187	176	127	133	132	152	167
29	176	205	196	195	---	189	172	127	130	133	151	169
30	176	194	194	191	---	191	169	126	127	133	151	171
31	175	---	191	191	---	191	---	125	---	134	152	---
MEAN	178	192	201	197	188	187	197	148	124	126	142	157

WTR YR 1985 MEAN 170 MAX 224 MIN 117

14128910 COLUMBIA RIVER AT WARRENDALE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	16.5	16.0	10.5	9.5	8.0	7.5	4.5	4.0	3.0	3.0	4.5	4.0
2	16.5	16.0	10.0	9.5	7.5	7.0	4.0	3.5	3.0	2.5	4.5	4.0
3	16.0	16.0	10.0	9.5	7.0	7.0	3.5	3.5	2.5	2.5	4.5	4.5
4	16.0	16.0	10.0	9.5	7.0	6.5	3.5	3.5	2.5	2.0	4.5	4.5
5	16.0	16.0	10.0	9.5	6.5	6.5	3.5	3.5	2.5	2.5	4.5	4.5
6	16.0	16.0	10.0	9.5	6.5	6.5	3.5	3.5	2.5	2.5	5.0	4.5
7	16.0	16.0	10.0	9.5	6.5	6.5	3.5	3.5	2.5	2.0	5.0	4.5
8	16.0	16.0	9.5	9.5	6.5	6.5	3.5	3.5	2.0	2.0	5.0	4.5
9	16.0	16.0	9.5	9.5	6.5	6.5	3.5	3.0	2.0	2.0	5.0	5.0
10	16.0	16.0	9.5	9.0	6.5	6.5	3.0	3.0	2.0	2.0	5.0	5.0
11	16.0	15.5	9.0	9.0	6.5	6.5	3.0	2.5	2.0	1.5	5.5	5.0
12	15.5	15.0	9.0	9.0	6.5	6.0	2.5	2.5	2.0	2.0	5.5	5.0
13	15.0	14.5	9.0	9.0	6.5	6.0	2.5	2.5	2.0	2.0	5.5	5.5
14	14.5	14.5	9.0	9.0	6.0	6.0	2.5	2.5	2.0	2.0	5.5	5.5
15	14.5	14.0	9.0	8.5	6.0	6.0	3.0	2.5	2.0	2.0	6.0	5.5
16	14.0	14.0	9.0	8.5	6.0	6.0	3.0	3.0	2.0	2.0	6.0	5.5
17	14.0	14.0	8.5	8.5	6.0	5.5	3.0	3.0	2.5	2.0	6.0	5.5
18	14.0	13.5	8.5	8.5	5.5	4.5	3.0	3.0	2.5	2.0	6.0	6.0
19	13.5	13.5	8.5	8.5	4.5	4.0	3.0	3.0	2.5	2.5	6.0	6.0
20	13.5	13.5	8.5	8.5	4.0	4.0	3.0	3.0	3.0	2.5	6.5	6.0
21	13.5	13.0	8.5	8.5	4.5	4.0	3.5	3.0	3.0	3.0	6.0	6.0
22	13.0	13.0	8.5	8.0	5.0	4.5	3.5	3.5	3.5	3.0	6.0	6.0
23	13.0	12.5	8.0	8.0	5.0	5.0	3.5	3.5	4.0	3.5	6.0	6.0
24	12.5	12.5	8.0	8.0	5.0	5.0	3.5	3.5	4.0	4.0	6.0	6.0
25	12.5	12.5	8.0	8.0	5.0	5.0	3.5	3.0	4.0	4.0	6.5	6.0
26	12.5	12.0	8.0	8.0	5.0	5.0	3.5	3.0	4.0	4.0	6.5	6.0
27	12.0	12.0	8.0	7.5	5.0	5.0	3.0	3.0	4.0	4.0	6.5	6.0
28	12.0	11.5	7.5	7.5	5.0	4.5	3.0	3.0	4.0	4.0	6.5	6.0
29	12.0	11.5	7.5	7.5	4.5	4.5	3.0	3.0	---	---	6.5	6.5
30	11.5	11.0	7.5	7.5	4.5	4.5	3.0	3.0	---	---	6.5	6.5
31	11.0	10.5	---	---	4.5	4.5	3.0	3.0	---	---	7.0	6.5
MONTH	16.5	10.5	10.5	7.5	8.0	4.0	4.5	2.5	4.0	1.5	7.0	4.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.5	7.0	10.5	10.0	14.5	14.0	18.5	18.0	21.5	21.0	19.0	19.0
2	7.5	7.0	11.0	10.5	14.5	14.0	19.0	18.0	21.0	21.0	19.0	18.5
3	7.5	7.5	11.0	10.5	14.5	14.5	19.0	18.5	21.5	21.0	19.0	18.5
4	7.5	7.0	11.0	10.5	15.0	14.5	19.5	19.0	21.5	21.0	18.5	18.5
5	7.5	7.0	11.0	10.5	15.0	15.0	19.5	19.0	21.0	21.0	18.5	18.0
6	8.0	7.5	11.0	10.5	15.0	15.0	19.5	19.0	21.5	21.0	18.0	18.0
7	8.0	8.0	11.0	11.0	15.0	14.5	19.5	19.0	21.0	21.0	18.0	18.0
8	8.5	8.0	11.5	11.0	15.0	14.5	19.5	19.5	21.0	20.5	18.0	18.0
9	8.5	8.0	11.5	11.0	15.0	14.5	20.0	19.5	21.0	20.5	18.0	18.0
10	8.5	8.5	11.0	11.0	15.5	15.0	20.0	20.0	20.5	20.5	18.0	18.0
11	8.5	8.5	11.0	10.5	16.0	15.5	20.5	20.0	20.5	20.5	18.0	18.0
12	9.0	8.5	11.0	10.5	16.5	16.0	20.5	20.0	20.5	20.0	18.0	18.0
13	9.5	9.0	11.0	10.5	16.5	16.0	20.0	20.0	20.5	20.0	18.0	18.0
14	10.0	9.5	11.5	11.0	16.5	16.5	20.5	20.0	20.5	20.5	18.0	18.0
15	10.0	10.0	11.5	11.0	16.5	16.5	20.5	20.0	20.5	20.5	18.0	17.5
16	10.0	10.0	12.0	11.5	17.0	16.5	20.5	20.0	20.5	20.5	17.5	17.5
17	10.5	10.0	12.5	12.0	17.0	16.5	20.5	20.0	21.0	20.5	17.5	17.0
18	10.0	10.0	12.5	12.0	17.0	16.5	21.0	20.5	21.0	20.5	17.0	17.0
19	10.0	10.0	13.0	12.5	17.5	17.0	21.5	21.0	20.5	20.0	17.0	17.0
20	10.0	10.0	13.0	12.5	17.5	17.5	21.5	21.0	20.0	19.5	17.0	17.0
21	10.0	10.0	13.5	12.5	18.0	17.5	21.5	21.5	19.5	19.5	17.0	16.5
22	10.5	10.0	13.5	13.0	18.0	17.5	21.5	21.5	19.5	19.0	17.0	16.5
23	10.0	10.0	14.0	13.5	17.5	17.5	21.5	21.0	19.5	19.0	16.5	16.5
24	10.0	9.5	14.0	14.0	17.5	17.5	21.5	21.0	19.5	19.0	17.0	16.5
25	10.0	9.5	14.5	14.0	18.0	17.5	21.0	21.0	20.0	19.0	17.0	16.5
26	9.5	9.5	14.5	14.0	18.0	17.5	21.5	21.0	20.0	19.5	16.5	16.5
27	10.0	9.5	14.5	14.5	18.0	18.0	21.5	21.0	20.0	19.5	16.5	16.5
28	10.0	9.5	15.0	14.5	18.0	18.0	22.0	21.0	19.5	19.5	16.5	15.5
29	10.0	10.0	14.5	14.5	18.0	18.0	22.0	21.5	19.5	19.0	15.5	15.0
30	10.5	10.0	14.5	14.0	18.0	18.0	22.0	21.5	19.5	19.0	15.5	15.0
31	---	---	14.5	14.5	---	---	21.5	21.0	19.5	19.0	---	---
MONTH	10.5	7.0	15.0	10.0	18.0	14.0	22.0	18.0	21.5	19.0	19.0	15.0
YEAR	22.0	1.5										

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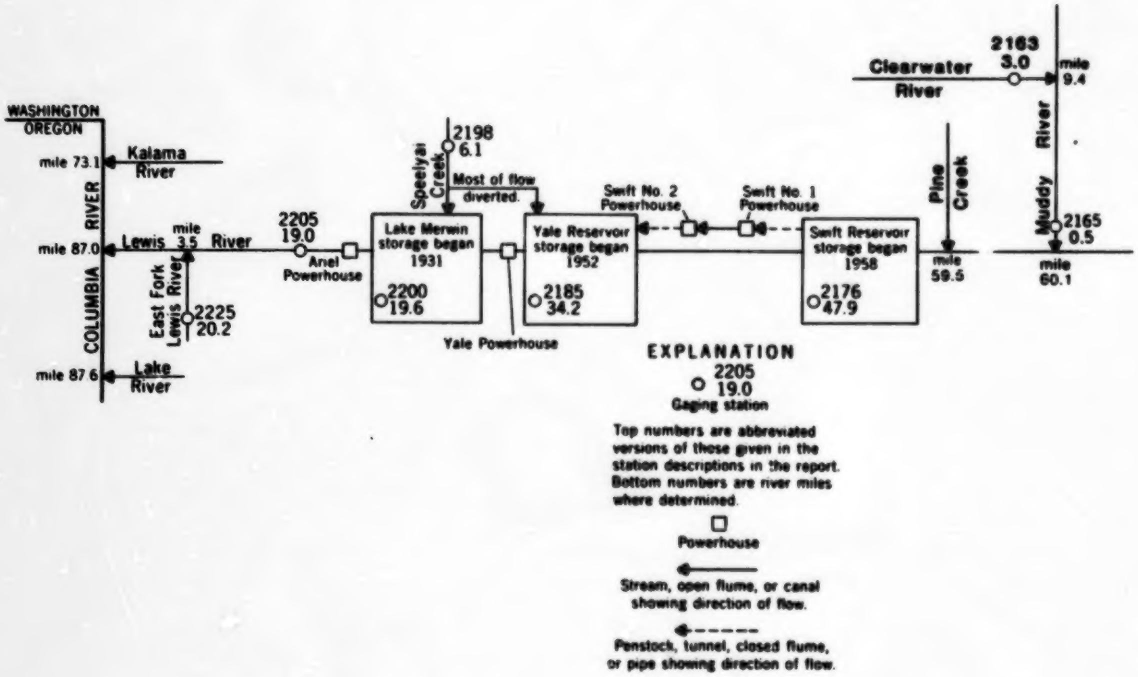
2163
3.0
Clearwater
River
mile
9.4
WASHINGTON
OREGON
mile 73.1
Kalama
River
2198
6.1
Speelyai
Creek
Most of flow
diverted.
Swift No. 2
Powerhouse
Swift No. 1
Powerhouse
Pine
Creek
Muddy
River
COLUMBIA
RIVER
mile 87.0
Lewis
mile
3.5
River
2205
19.0
Ariel
Powerhouse
Lake Merwin
storage began
1931
2200
19.6
Yale Powerhouse
Yale Reservoir
storage began
1952
2185
34.2
Swift Reservoir
storage began
1958
2176
47.9
mile
59.5
2165
0.5
mile
60.1
East Fork
Lewis River
2225
20.2
mile 87.6
Lake
River
EXPLANATION
2205
19.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 32.--Gaging stations in Lewis River basin.

14216300 CLEARWATER CREEK NEAR MOUTH, NEAR COUGAR, WA

LOCATION.--Lat 46°12'07", long 122°00'54", in SW¼NW¼ sec.1, T.8 N., R.6 E., Skamania County, Hydrologic Unit 17080002, Gifford Pinchot National Forest, 3 mi upstream from mouth, and 17.0 mi northeast of Cougar.

DRAINAGE AREA.--33 mi^2.

PERIOD OF RECORD.--October 1981 to current year. Published as "Clearwater River near mouth, near Cougar" October 1981 through September 1984.

GAGE.--Water-stage recorder. Elevation of gage is 1,520 ft, from topographic map.

REMARKS.--Estimated daily discharges: June 9, 10 and Sept. 9-12. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,220 ft^3/s Feb. 20, 1982, gage height, 16.67 ft; minimum daily, 25 ft^3/s Oct. 3, 8, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 912 ft^3/s Apr. 15; minimum daily, 25 ft^3/s Oct. 3, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	93	192	104	62	105	231	324	175	90	65	32
2	26	367	178	101	63	105	273	413	161	85	54	33
3	25	397	167	101	58	103	317	520	149	80	54	32
4	26	387	154	96	54	103	315	491	141	76	52	32
5	26	360	143	91	58	103	322	423	142	73	50	33
6	26	359	139	91	58	98	360	367	217	72	48	36
7	26	361	141	91	58	92	410	332	650	70	47	36
8	25	345	151	89	58	91	463	310	621	68	47	34
9	26	336	148	84	57	92	537	295	500	66	44	35
10	54	421	145	79	56	94	628	290	370	64	43	45
11	55	521	141	74	65	99	742	280	293	63	42	40
12	58	749	138	73	72	104	769	259	277	62	40	55
13	69	859	138	73	66	106	772	250	253	61	39	65
14	71	813	148	74	66	113	788	248	231	60	39	75
15	66	686	148	74	70	121	846	256	211	60	37	65
16	62	557	137	73	69	131	868	356	193	61	37	55
17	59	454	133	74	68	146	728	559	180	59	36	55
18	58	441	112	76	68	158	611	619	170	57	35	60
19	57	385	103	75	68	165	494	572	162	56	35	59
20	57	358	105	74	68	173	392	475	152	53	35	55
21	56	322	106	74	69	177	318	411	145	52	34	52
22	56	296	119	74	76	171	281	405	140	50	34	51
23	56	308	141	72	85	192	268	413	133	49	32	49
24	56	289	133	69	99	193	232	439	126	48	32	48
25	80	263	125	66	104	179	215	401	120	47	32	47
26	87	244	122	64	98	173	210	341	114	45	32	45
27	92	233	122	63	97	170	226	302	109	44	32	44
28	94	232	117	64	99	159	264	257	104	44	32	43
29	92	226	117	64	---	157	280	227	100	42	32	42
30	92	208	117	61	---	170	289	200	95	42	32	42
31	91	---	110	62	---	198	---	181	---	43	32	---
TOTAL	1750	11870	4190	2400	1989	4241	13449	11216	6434	1842	1235	1395
MEAN	56.5	396	135	77.4	71.0	137	448	362	214	59.4	39.8	46.5
MAX	94	859	192	104	104	198	868	619	650	90	65	75
MIN	25	93	103	61	54	91	210	181	95	42	32	32
CFSM	1.71	12.0	4.09	2.35	2.15	4.15	13.6	11.0	6.48	1.80	1.21	1.41
IN.	1.97	13.38	4.72	2.71	2.24	4.78	15.16	12.64	7.25	2.08	1.39	1.57
AC-FT	3470	23540	8310	4760	3950	8410	26680	22250	12760	3650	2450	2770

CAL YR 1984 TOTAL 80446 MEAN 220 MAX 859 MIN 25 CFSM 6.67 IN. 90.68 AC-FT 159600
WTR YR 1985 TOTAL 62011 MEAN 170 MAX 868 MIN 25 CFSM 5.15 IN. 69.90 AC-FT 123000

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14216500 MUDDY RIVER BELOW CLEAR CREEK, NEAR COUGAR, WA

LOCATION.-- Lat 46°04'33", long 121°59'51", in NE¼SE¼ sec.24, T.7 N., R.6 E., Skamania County, Hydrologic Unit 17080002, Gifford Pinchot National Forest, on left bank 3.9 mi downstream from Clear Creek, approximately 14 mi northeast of Cougar, and 0.5 mi upstream from mouth.

DRAINAGE AREA.--135 mi².

PERIOD OF RECORD.--August 1927 to September 1934, October 1954 to December 1973 (destroyed by flood of January 1974), October 1983 to current year. Published as "near Cougar" 1927-34. Records for August to October 1909, published in WSP 272 and 492, have been found to be unreliable and should not be used. Records for August 1980 to September 1981 (discharge measurements only), October 1981 to September 1983 at site 4.5 mi upstream published as "above Clear Creek" (station 14216350) is not equivalent due to inflow between sites.

GAGE.--Water-stage recorder. Elevation of gage is 1,080 ft, from topographic map.

AVERAGE DISCHARGE.--28 years (1928-34, 1954-73, 1984-85), 873 ft³/s, 87.82 in/yr, 632,500 acre-ft/yr.

REMARKS.--No estimated daily discharges during water year. Records good. No regulation or diversion upstream from station. U.S. Geological Survey telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s Dec. 21, 1933, gage height, 14.0 ft from high-water marks, site and datum then in use, from rating curve extended above 4,500 ft³/s; minimum recorded, 94 ft³/s Dec. 5-7, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood occurred about 0900 hours on May 18, 1980, from a mudflow caused by the erruption of Mount St. Helens.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	0815	*4,740	*21.68	No other peak greater than base discharge.			

Minimum daily discharge, 151 ft³/s Aug. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	330	962	500	290	472	1190	1350	965	402	239	163
2	158	2110	833	485	285	447	1380	1550	919	385	215	168
3	157	2170	744	466	278	436	1530	1780	871	370	204	167
4	162	1930	685	448	293	441	1480	1630	949	355	195	168
5	162	1570	642	444	263	436	1490	1440	932	339	188	177
6	157	1490	611	437	265	423	1560	1300	1400	326	183	195
7	158	1540	608	425	270	405	1740	1200	3380	313	187	181
8	157	1340	649	408	267	402	1950	1140	2590	302	212	178
9	171	1290	630	392	263	404	2130	1090	1820	296	188	186
10	360	1700	618	375	264	401	2410	1080	1460	287	182	212
11	315	1950	573	356	303	414	2640	1030	1280	280	179	185
12	313	2540	581	347	411	429	2820	973	1200	272	177	226
13	389	2820	568	347	322	434	2680	966	1100	264	174	238
14	346	2310	718	345	314	451	2630	984	1010	258	171	253
15	290	1870	726	345	343	482	2670	1010	932	251	169	219
16	260	1500	634	339	323	528	2550	1280	868	248	167	210
17	243	1240	604	343	308	620	2230	1820	817	243	165	255
18	236	1390	530	352	304	696	1940	2090	784	237	164	215
19	231	1270	506	348	307	732	1670	2050	761	233	163	196
20	238	1250	507	353	305	769	1450	1800	727	228	161	188
21	227	1160	518	348	306	782	1260	1620	687	223	159	183
22	219	1080	573	346	349	746	1200	1570	646	218	157	179
23	217	1300	655	340	387	999	1280	1600	606	217	155	176
24	219	1200	605	329	450	1070	1100	1670	573	214	153	174
25	294	1060	569	316	456	952	1040	1560	543	212	152	173
26	339	952	554	307	434	924	1010	1400	515	209	151	172
27	365	974	569	302	428	894	1170	1300	493	208	151	172
28	380	1180	536	307	443	789	1280	1190	470	206	153	170
29	343	1130	567	302	---	729	1280	1100	446	205	155	168
30	337	1090	618	282	---	867	1290	1000	423	205	158	168
31	320	---	543	288	---	1050	---	941	---	222	161	---
TOTAL	7921	44736	19236	11322	9231	19624	52050	42514	30167	8228	5388	5715
MEAN	256	1491	621	365	330	633	1735	1371	1006	265	174	191
MAX	389	2820	962	500	456	1070	2820	2090	3380	402	239	255
MIN	157	330	506	282	263	401	1010	941	423	205	151	163
CFSM	1.90	11.0	4.60	2.70	2.44	4.69	12.9	10.2	7.45	1.96	1.29	1.41
IN.	2.18	12.33	5.30	3.12	2.54	5.41	14.34	11.71	8.31	2.27	1.48	1.57
AC-FT	15710	88730	38150	22460	18310	38920	103200	84330	59840	16320	10690	11340

CAL YR 1984	TOTAL	322322	MEAN	881	MAX	3620	MIN	157	CFSM	6.53	IN.	88.82	AC-FT	639300
WTR YR 1985	TOTAL	256132	MEAN	702	MAX	3380	MIN	151	CFSM	5.20	IN.	70.58	AC-FT	508000

14219800 SPEELYAI CREEK NEAR COUGAR, WA

LOCATION.--Lat 46°00'28", long 122°20'46", in NW¼NW¼ sec.17, T.6 N., R.4 E., Cowlitz County, Hydrologic Unit 17080002, on right bank 3.8 mi southwest of Cougar, and at mile 6.1.

DRAINAGE AREA.--12.6 mi².

PERIOD OF RECORD.--May 1959 to May 1978, October 1978 to current year.

REVISED RECORDS.--WSP 1718: 1959. WDR WA-81-1: 1978-80(P). WDR WA-84-1: 1983.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft, from topographic map. Prior to Nov. 21, 1959, at site 250 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. A diversion structure 1,000 ft downstream from station diverts the flow into Yale Reservoir. At extreme high stages, some flow will overtop the diversion structure into the original channel.

AVERAGE DISCHARGE.--25 years (water years 1960-77, 1979-85), 106 ft³/s, 114.24 in/yr, 76,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,600 ft³/s probably Nov. 20, 1962 (by slope-area measurement, gage height not determined); minimum observed, 1.8 ft³/s Sept. 24-29, 1967, gage height, 0.24 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maxixmum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 2	1145	779	4.01	June 7	0700	*1,030	*4.41
Nov. 28	1030	756	3.97				

Minimum discharge, 2.6 ft³/s Aug. 27, gage height, 0.96 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	93	242	128	28	91	375	124	49	16	9.0	3.4
2	3.9	550	170	99	26	82	324	134	53	15	6.8	3.3
3	3.7	546	126	80	24	75	273	139	46	14	5.9	3.2
4	10	344	100	68	25	74	205	118	59	14	5.5	3.0
5	7.2	229	82	60	26	71	173	100	53	13	5.2	9.0
6	5.2	182	71	54	25	64	178	89	121	12	5.0	14
7	5.1	204	63	49	26	59	202	79	719	12	8.2	8.0
8	6.5	195	59	45	23	55	202	73	325	11	24	5.5
9	11	219	56	42	23	55	212	66	187	11	9.1	5.4
10	57	320	59	39	23	56	213	67	129	10	7.1	20
11	73	339	54	35	77	60	212	63	97	9.8	6.3	12
12	86	341	57	34	108	62	197	59	78	9.4	5.8	18
13	94	295	59	32	77	60	178	57	67	9.1	5.5	26
14	87	238	120	32	77	61	175	58	58	8.7	5.0	28
15	72	179	151	31	94	64	170	57	51	8.3	4.8	33
16	56	134	118	30	86	73	152	69	45	8.2	4.5	34
17	45	110	96	33	76	86	119	78	40	8.1	4.3	66
18	37	162	79	39	69	87	102	73	36	7.9	4.2	47
19	33	181	68	42	68	84	89	65	33	7.4	4.6	35
20	33	202	61	45	70	94	78	57	30	7.1	4.5	28
21	29	165	61	45	77	96	68	51	28	6.8	4.3	23
22	26	130	93	46	107	92	79	48	26	6.6	4.2	20
23	23	141	141	45	126	185	185	47	24	6.6	3.8	17
24	23	146	145	43	145	212	153	45	23	6.7	3.6	16
25	43	134	122	40	141	159	126	41	22	6.3	3.7	14
26	63	119	104	37	118	132	111	37	21	5.7	3.4	13
27	115	251	101	35	100	116	147	34	20	5.5	3.1	11
28	170	634	85	34	94	99	166	32	19	5.2	3.1	10
29	117	492	127	32	---	91	143	37	18	5.1	3.0	9.4
30	98	382	226	29	---	217	126	39	17	7.4	3.6	8.8
31	83	---	179	29	---	370	---	34	---	9.4	4.4	---
TOTAL	1519.4	7657	3275	1432	1959	3182	5133	2070	2494	283.3	175.5	544.0
MEAN	49.0	255	106	46.2	70.0	103	171	66.8	83.1	9.14	5.66	18.1
MAX	170	634	242	128	145	370	375	139	719	16	24	66
MIN	3.7	93	54	29	23	55	68	32	17	5.1	3.0	3.0
CFSM	3.89	20.2	8.41	3.67	5.56	8.17	13.6	5.30	6.60	.73	.45	1.44
IN.	4.49	22.61	9.67	4.23	5.78	9.39	15.15	6.11	7.36	.84	.52	1.61
AC-FT	3010	15190	6500	2840	3890	6310	10180	4110	4950	562	348	1080

CAL YR 1984 TOTAL 38430.9 MEAN 105 MAX 634 MIN 3.5 CFSM 8.33 IN. 113.46 AC-FT 76230
WTR YR 1985 TOTAL 29724.2 MEAN 81.4 MAX 719 MIN 3.0 CFSM 6.46 IN. 87.76 AC-FT 58960

RESERVOIRS IN LEWIS RIVER BASIN, WA

14217600 SWIFT RESERVOIR.--Lat 46°03'38", long 122°11'44", in NE¼SW¼ sec.28, T.7 N., R.5 E., Skamania County, Hydrologic Unit 17080002, at the intake structure near left bank on Swift Dam on Lewis River, 5.0 mi east of Cougar, and at mile 47.9. DRAINAGE AREA.--481 mi². PERIOD OF RECORD.--September 1958 to current year. GAGE.--water-stage recorder and long distance indicator in powerhouse. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--Reservoir is formed by rock and earthfill dam; storage began Sept. 29, 1958; dam completed in December 1958. Usable capacity, 446,550 acre-ft between elevations 878 ft, lower limit for economic operation, and 1,000.5 ft, maximum operating limit. Dead storage unknown. Figures given herein represent total contents. Water is used by Pacific Power & Light Co., for power development. Capacity table furnished by Pacific Power & Light Co., but may be revised after bathymetric survey for period after May 18, 1980 eruption of Mt. St. Helens.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 759,100 acre-ft Nov. 15, 1973, elevation, 1,000.77 ft; minimum since reservoir was first filled, 325,100 acre-ft May 1, 1967, elevation, 883.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 754,750 acre-ft Aug. 5, elevation, 999.82 ft; minimum, 416,600 acre-ft Feb. 6, elevation, 913.31 ft.

14218500 YALE RESERVOIR.--Lat 45°57'50", long 122°19'53", in SE¼NE¼ sec.32, T.6 N., R.4 E., Clark County, Hydrologic Unit 17080002, at left end of Yale Dam on Lewis River just upstream from intake, 500 ft upstream from powerhouse, 1.0 mi upstream from Canyon Creek, 3.2 mi southeast of Yale, and at mile 34.2. DRAINAGE AREA.--596 mi². PERIOD OF RECORD.--August 1952 to current year. GAGE.--water-stage recorder with supplementary water-stage recorder and long distance indicator in powerhouse. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.). Prior to Feb. 1, 1954, nonrecording indicator gage at same site and datum.

REMARKS.--Reservoir is formed by rock and earthfill dam; storage began July 31, 1952, dam completed in 1952. Usable capacity, 189,530 acre-ft between elevations 430 ft, lower limit for economic operation, and 490 ft, top of spillway gates. Dead storage below elevation 417 ft, 178,050 acre-ft. Figures given herein represent total contents. Water is used by Pacific Power & Light Co., for power development. Capacity table furnished by Pacific Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 402,500 acre-ft May 13, 1961, elevation, 490.15 ft; minimum observed since reservoir was first filled, 227,600 acre-ft Feb. 22, 1957, elevation, 435.65 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 401,330 acre-ft June 7, elevation, 489.88 ft; minimum, 323,170 acre-ft Sept. 27, elevation, 467.67 ft.

14220000 LAKE MERWIN.--Lat 45°57'23", long 122°33'13", in SW¼SW¼ sec.34, T.6 N., R.2 E., Clark County, Hydrologic Unit 17080002, on left end of dam on Lewis River at Ariel, and at mile 19.6. DRAINAGE AREA.--730 mi². PERIOD OF RECORD.--March 1931 to current year. GAGE.--water-stage recorder with supplementary water-stage recorder and long distance indicator in powerhouse. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--Reservoir is formed by combination gravity-concrete-arch dam; some storage began March 1931; completed May 13, 1931. Usable capacity, 246,000 acre-ft between elevations 165 ft, lower limit of regulation set by Federal Energy Regulatory Commission, and 235 ft, top of spillway gates. Additional storage of 18,200 acre-ft is provided by flashboards to elevation 239.6 ft. Unused storage below elevation 165 ft, 159,000 acre-ft. Figures given herein represent total contents. Water is used by Pacific Power & Light Co., for power development. Capacity table furnished by Pacific Power & Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents during the period 1931-52 not determined; maximum since 1953, 424,000 acre-ft Jan. 24, 1959, elevation, 239.86 ft; minimum observed since reservoir was first filled, 164,200 acre-ft Dec. 5, 1936, elevation, 166.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 422,450 acre-ft May 17, elevation, 239.51 ft; minimum, 381,600 acre-ft Nov. 30, elevation, 229.05 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
	14217600	SWIFT RESERVOIR		14218500	YALE RESERVOIR		14220000	LAKE MERWIN	
Sept. 30......	984.05	684,340	-	468.37	325,450	-	235.02	404,680	-
Oct. 31......	951.99	553,690	-130,650	480.04	365,200	+39,750	235.64	407,110	+2,430
Nov. 30......	988.25	702,730	+149,040	485.48	384,910	+19,710	230.08	385,540	-21,570
Dec. 31......	938.07	501,980	-200,750	471.78	336,710	-48,200	234.88	404,130	+18,590
CAL YR 1984	-	-	-72900	-	-	+11,650	-	-	+2,390
Jan. 31......	924.29	453,320	-48,660	476.34	352,230	+15,520	235.33	405,890	+1,760
Feb. 28......	931.05	476,800	+23,480	488.39	395,730	+43,500	237.25	413,470	+7,580
Mar. 31......	963.90	600,430	+123,630	478.68	360,390	-35,340	236.98	412,400	-1,070
Apr. 30......	989.17	706,780	+106,350	489.28	399,070	+38,680	239.30	421,610	+9,210
May 31......	992.37	721,100	+14,320	489.05	398,210	-860	239.12	420,890	-720
June 30......	998.92	750,620	+29,520	488.92	397,720	-490	237.66	415,090	-5,800
July 31......	998.84	750,250	-370	486.48	388,600	-9,120	237.46	414,300	-790
Aug. 31......	997.49	744,140	-6,110	486.93	390,260	+1,660	235.85	407,940	-6,360
Sept. 30......	985.66	691,330	-52,810	468.81	326,880	-63,380	234.79	403,780	-4,160
WTR YR 1985	-	-	+6,990	-	-	+1,430	-	-	-900

14220500 LEWIS RIVER AT ARIEL, WA
(National stream quality accounting network station)

LOCATION.--Lat 45°57'07", long 122°33'46", in NW¼NE¼ sec.4, T.5 N., R.2 E., Cowlitz County, Hydrologic Unit 17080002. on right bank 0.4 mi southeast of Ariel, 0.5 mi downstream from Ariel Dam and powerplant, 3.3 mi upstream from Cedar Creek, and at mile 19.0.

DRAINAGE AREA.--731 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to October 1909, November 1909 (gage heights only), July to October 1922, July 1923 to current year. Published as "near Ariel" water years 1922-29. Prior to October 1952, discharge measurements made at site 0.5 mi downstream; low discharges not equivalent due to local inflow.

REVISED RECORDS.--WSP 884: 1938. WSP 984: 1936-37, 1940-42. WSP 1318: 1924-30(M).

GAGE.--Water-stage recorder. Datum of gage is 44.0 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Power and Light Co.). July to November 1909, nonrecording gage at site 4 mi upstream at different datum. July 27 to Oct. 29, 1922, and July 31, 1923, to Apr. 20, 1930, nonrecording gages at site 0.5 mi downstream at datums 3.90 ft and 0.90 ft higher respectively, than present datum.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. No diversion upstream from station. Flow regulated by Swift and Yale Reservoirs, and Lake Merwin (stations 14217600, 14218500, 14220000).

AVERAGE DISCHARGE.--62 years (water years 1924-85), 4,860 ft³/s, 90.29 in/yr, 3,521,000 acre-ft/yr, adjusted for storage in Lake Merwin Reservoir since March 1931, Yale Reservoir since August 1952, and Swift Reservoir since October 1958.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 129,000 ft³/s Dec. 22, 1933, gage height, 35.0 ft, from floodmarks, from rating curve extended above 56,000 ft³/s on basis of computation of peak flow over dam; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Ariel Dam); minimum daily, 1 ft³/s July 6, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,100 ft³/s June 7, gage height, 11.29 ft; minimum, 667 ft³/s Nov. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3050	2520	11000	9400	1460	2530	2590	7010	4570	2130	1180	1170
2	3050	5410	9120	8270	1460	2560	2570	7140	4560	1930	1170	1170
3	3060	6300	8430	8290	1480	2570	2570	8050	4580	1930	1160	1180
4	3070	6360	9060	5490	1480	2570	2580	9130	4550	1930	1170	1180
5	3030	6400	8910	2890	1480	2570	2580	9010	4540	1940	1170	1180
6	3030	6220	8880	2940	1460	2570	2560	7460	4760	1930	1170	1170
7	3030	6250	4970	5130	1460	2580	2570	5420	14400	1930	1180	1160
8	3020	4160	8880	3010	1460	2580	2810	4540	17900	1930	1160	1170
9	3020	6380	5560	2800	1470	2570	4340	4580	9880	1920	1180	1170
10	3030	6450	9530	2850	1460	2560	6120	4540	8420	1940	1180	3600
11	3010	6540	9420	2720	1450	2580	6200	4530	8170	1940	1170	5850
12	5410	6520	9270	1730	1470	2590	7200	4510	5230	1940	1160	5880
13	6250	6540	5020	1730	1450	2550	8060	4460	4470	1940	1170	6030
14	6200	6550	9420	1720	1470	2550	9990	2750	4450	1660	1170	6160
15	6090	4260	9480	1720	1460	2560	10800	2630	4450	1450	1170	6170
16	6140	6380	9480	1720	1460	2550	8840	2600	4450	1360	1170	5020
17	6140	6400	9220	1710	1450	2560	7930	3960	3490	1260	1160	4770
18	2660	6450	9470	1710	1450	2560	6530	5520	2390	1280	1180	6130
19	2990	6450	9440	1700	1450	2550	5730	7040	2390	1250	1170	6120
20	3070	6480	9450	1690	1450	2560	4750	7910	2400	1260	1180	6120
21	3020	3990	8580	1680	1440	2560	4680	7150	2400	1270	1180	3170
22	3030	6590	6390	1680	1460	2560	4060	6120	2400	1210	1170	2800
23	2910	6640	7170	1670	1450	2560	2860	5860	2410	1180	1160	2880
24	2760	6660	7480	1680	1460	2560	2830	5140	2390	1170	1170	2900
25	2210	6650	8910	1690	1450	2560	2840	5110	2400	1170	1150	2880
26	2740	6520	7790	1710	1450	2570	4430	5140	2400	1180	1180	2890
27	2750	6570	6540	1720	1460	2580	5980	5130	2410	1160	1160	2880
28	2770	7210	8200	1730	1450	2560	5970	4810	2400	1160	1170	2860
29	2790	9970	9350	1740	---	2560	6020	4560	2390	1180	1160	2860
30	2840	7100	9320	1750	---	2560	6380	4570	2400	1180	1170	2020
31	2840	---	9370	1620	---	2560	---	4570	---	1160	1180	---
TOTAL	109010	186920	263110	87890	40850	79460	153370	170950	144050	47870	36270	100540
MEAN	3516	6231	8487	2835	1459	2563	5112	5515	4802	1544	117[illegible]	3351
MAX	6250	9970	11000	9400	1480	2590	10800	9130	17900	2130	118[illegible]	6170
MIN	2210	2520	4970	1620	1440	2530	2560	2600	2390	1160	1150	1160
AC-FT	216200	370800	521900	174300	81030	157600	304200	339100	285700	94950	71940	199400
MEAN†	2077	8705	4741	2324	2802	3981	7704	5721	5191	1377	994	1328
CFSM†	2.84	11.9	6.48	3.18	3.83	5.45	10.5	7.83	7.10	1.88	1.36	1.82
IN.†	3.28	13.29	7.48	3.67	3.99	6.28	11.76	9.03	7.93	2.17	1.57	2.03
AC-FT†	127700	518000	291500	142900	155600	244800	458400	351800	308900	84680	61130	79050

CAL YR 1984 TOTAL 1844209 MEAN 5039 MAX 12000 MIN 869 AC-FT 3658000 MEAN† 4958 CFSM† 6.78 IN.† 92.34 AC-FT† 3599000
WTR YR 1985 TOTAL 1420290 MEAN 3891 MAX 17900 MIN 1150 AC-FT 2817000 MEAN† 3902 CFSM† 5.34 IN.† 72.48 AC-FT† 2825000

† Adjusted for change in contents of Lake Merwin, Swift Reservoir, and Yale Reservoir.

14220500 LEWIS RIVER AT ARIEL, WA--Continued
(National stream quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1959 to June 1960, April 1979 to current year. Additional data from April to August 1980 are published in U.S. Geological Survey Open-File Report 81-1007.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1950 to September 1963.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT											
19...	1300	3060	48	7.40	14.0	2.0	10.1	98	K1	K4	16
JAN											
23...	1200	1680	45	7.40	4.5	1.2	13.1	100	K7	<1	16
APR											
15...	1115	11800	44	7.20	5.5	1.5	12.9	103	<1	<1	15
JUL											
26...	1030	1210	45	7.00	11.0	.90	11.4	103	<1	K6	16

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
19...	0	4.6	1.1	3.4	31	.4	.60	18	3.0	2.1	<.10
JAN											
23...	0	4.4	1.1	3.1	29	.4	.60	17	2.6	1.9	<.10
APR											
15...	0	4.4	1.0	3.0	29	.3	.50	16	2.8	1.8	<.10
JUL											
26...	0	4.5	1.1	3.1	29	.4	.50	16	2.8	1.9	<.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT											
19...	15	42	41	.06	347	<.10	.010	.20	.010	<.010	<.010
JAN											
23...	15	33	39	.04	150	.12	.020	.20	.010	<.010	.010
APR											
15...	14	39	37	.05	1240	.12	.040	.30	<.010	.010	<.010
JUL											
26...	14	32	38	.04	105	<.10	.030	<.20	<.010	<.010	<.010

K - Results based on colony count outside the acceptable range (non-ideal colony count).

14220500 LEWIS RIVER AT ARIEL, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT 19...	<10	<1	10	<.5	2	<1	<3	<1	8	3	<4
JAN 23...	10	<1	7	<.5	<1	<1	<3	2	13	2	9
APR 15...	10	<1	11	<.5	<1	<1	<3	2	11	4	<4
JUL 26...	10	1	14	<.5	2	<1	<3	4	7	1	<4

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT 19...	11	<.1	<10	<1	<1	<1	21	<6	12	3	25
JAN 23...	2	<.1	<10	3	<1	<1	21	<6	12	2	9.1
APR 15...	<1	<.1	<10	3	<1	1	18	<6	11	2	64
JUL 26...	7	<.1	<10	1	<1	<1	19	<6	25	3	--

14222500 EAST FORK LEWIS RIVER NEAR HEISSON, WA

LOCATION.--Lat 45°40'13", long 122°27'54", in NE¼NW¼ sec.17, T.4 N., R.3 E., Clark County, Hydrologic Unit 17080002, on right bank 60 ft downstream from Basket Creek, 1.5 mi northeast of Heisson, 3.4 mi southwest of Yacolt, and at mile 20.2.

DRAINAGE AREA.--125 mi^2.

PERIOD OF RECORD.--September 1929 to current year.

GAGE.--Water-stage recorder. Datum of gage is 366.8 ft above National Geodetic Vertical Datum of 1929 (from river-profile survey).

REMARKS.--No estimated daily discharges. Records excellent. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--56 years, 754 ft^3/s, 81.91 in/yr, 546,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft^3/s Dec. 2, 1977, gage height, 12.95 ft; minimum, 29 ft^3/s Nov. 3, 1935, Sept. 27, 28, 1967; minimum gage height, 0.04 ft Nov. 3, 1935.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 28	1000	*5,260	*7.32				

Minimum discharge, 50 ft^3/s Aug. 27, gage height, 0.27 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	609	2300	1150	249	706	2580	726	369	157	102	54
2	69	3110	1710	951	232	637	2210	766	383	147	90	56
3	68	2790	1310	806	211	586	1920	788	341	140	82	56
4	85	2050	1060	702	210	739	1500	666	406	134	76	54
5	88	1440	872	627	227	652	1190	569	370	129	75	83
6	74	1130	746	567	226	593	1150	511	759	127	71	162
7	71	1160	664	518	252	542	1300	470	3650	123	90	100
8	72	1090	620	475	235	501	1230	440	2240	119	181	75
9	129	1210	639	439	241	481	1190	411	1300	114	110	91
10	298	1800	953	406	265	472	1200	425	909	108	88	286
11	343	1950	780	378	621	473	1130	423	706	107	79	160
12	403	1870	833	358	1000	470	1010	377	592	104	74	125
13	526	1960	841	343	655	440	880	368	509	101	71	187
14	645	1940	1110	336	640	431	840	413	453	99	65	173
15	536	1440	1420	328	1070	435	800	382	407	95	63	466
16	384	1090	1090	315	880	477	750	441	364	95	62	276
17	300	897	896	333	722	542	608	498	327	98	59	589
18	253	1010	750	375	626	521	587	456	300	94	59	469
19	240	964	656	379	625	495	566	414	281	87	64	304
20	336	1120	603	389	718	539	514	373	266	83	64	228
21	286	978	595	381	752	602	469	340	249	81	63	187
22	252	845	1140	371	1050	610	548	333	234	80	62	163
23	232	1070	1860	355	1120	1540	1080	338	221	82	57	142
24	244	1160	1650	334	1270	1740	894	326	212	86	54	127
25	474	1120	1260	314	1250	1200	778	302	203	83	56	116
26	851	1010	1050	297	988	1010	724	278	192	77	54	108
27	1060	1770	1100	284	822	995	860	262	183	74	52	103
28	1120	4540	1000	273	738	872	980	250	177	72	53	94
29	792	3680	1410	263	---	785	861	346	169	71	52	90
30	648	3310	1820	248	---	1430	756	440	165	79	54	87
31	577	---	1440	243	---	2190	---	337	---	110	57	---
TOTAL	11525	50113	34178	13538	17895	23706	31105	13469	16937	3156	2239	5211
MEAN	372	1670	1103	437	639	765	1037	434	565	102	72.2	174
MAX	1120	4540	2300	1150	1270	2190	2580	788	3650	157	181	589
MIN	68	609	595	243	210	431	469	250	165	71	52	54
CFSM	2.98	13.4	8.82	3.50	5.11	6.12	8.30	3.47	4.52	.82	.58	1.39
IN.	3.43	14.91	10.17	4.03	5.33	7.05	9.26	4.01	5.04	.94	.67	1.55
AC-FT	22860	99400	67790	26850	35490	47020	61700	26720	33590	6260	4440	10340

CAL YR 1984 TOTAL 296911 MEAN 811 MAX 4540 MIN 68 CFSM 6.49 IN. 88.36 AC-FT 588900
WTR YR 1985 TOTAL 223072 MEAN 611 MAX 4540 MIN 52 CFSM 4.89 IN. 66.39 AC-FT 442500

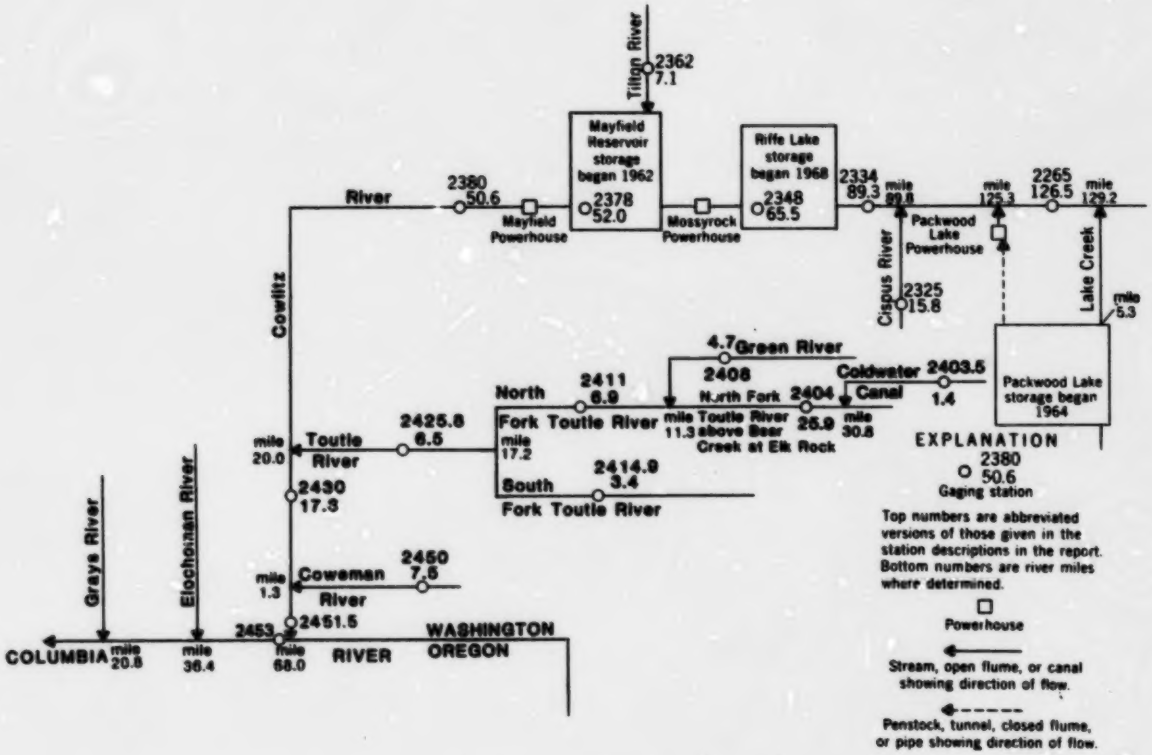
Tilton River
2362
7.1
Mayfield Reservoir storage began 1962
2378
52.0
Riffe Lake storage began 1968
2348
65.5
River
2380
50.6
Mayfield Powerhouse
Mossyrock Powerhouse
2334
89.3
mile 89.8
mile 125.3
2265
126.5
mile 129.2
Packwood Lake Powerhouse
Cispus River
2325
15.8
Lake Creek
mile 5.3
Packwood Lake storage began 1964
Cowlitz
4.7 Green River
2408
North Fork Toutle River above Bear Creek at Elk Rock
mile 11.3
2411
6.9
North Fork Toutle River
2404
25.9
mile 30.8
Coldwater Canal
2403.5
1.4
mile 17.2
2425.8
6.5
mile 20.0
Toutle River
2414.9
3.4
South Fork Toutle River
2430
17.3
Grays River
Elochoman River
2450
7.5
mile 1.3
Coweman River
2453
2451.5
COLUMBIA
mile 20.8
mile 36.4
mile 68.0
RIVER
WASHINGTON
OREGON
EXPLANATION
2380
50.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 33.--Gaging stations in Cowlitz River basin and downstream to mouth of Columbia River.

14226500 COWLITZ RIVER AT PACKWOOD, WA

LOCATION.--Lat 46°36'47", long 121°40'41", in SE¼SE¼ sec.16, T.13 N., R.9 E., Lewis County, Hydrologic Unit 17080004, on right bank on upstream side of Forest Service bridge, 0.6 mi northwest of Packwood, 0.8 mi upstream from Skate Creek, and at mile 126.5.

DRAINAGE AREA.--287 mi².

PERIOD OF RECORD.--July 1911 to December 1919, September 1929 to current year. Published as "at Lewis" 1911-19.

REVISED RECORDS.--WSP 884: 1938. WSP 1348: 1916-18(M), 1934. WSP 1638: 1947(P).

GAGE.--Water-stage recorder. Datum of gage is 1,048.0 ft above National Geodetic Vertical Datum of 1929 (Bureau of Public Roads bench mark). July 1, 1911, to Dec. 31, 1919, nonrecording gages at site about 1 mi upstream at different datums. Sept. 30, 1929, to Jan. 1, 1930, nonrecording gage at present site and datum. Feb. 8, 1978, to Jan. 5, 1981, on left bank downstream side of bridge at present datum.

REMARKS.--Estimated daily discharges: Oct. 20-24, Aug. 2 to Sept. 18. Records good except those for April to September, which are fair. Minor regulation by Packwood Lake beginning June 1964. Small diversions for domestic use. U.S. Geological Survey satellite telemeter at station. Water is diverted from Packwood Lake for power generation and is discharged into Cowlitz River about 1 mi downstream from this station. Monthly mean diversion in cubic feet per second for the current water year, as furnished by the Washington Power Supply System, is as follows:

October..........	46.6	January..........	39.2	April..........	56.3	July..........	105
November..........	86.2	February..........	36.4	May............	177	August........	42.8
December..........	53.1	March............	14.5	June...........	199	September.....	82.7

AVERAGE DISCHARGE.--64 years, (water years 1912-19, 1930-85), 1,618 ft³/s, 1,172,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s Dec. 21, 1933, gage height, 13.0 ft; maximum gage height, 13.73 ft Dec. 2, 1977; minimum discharge, 130 ft³/s Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1215	*17,000	*10.40	No other peak greater than base discharge.			

Minimum discharge, 284 ft³/s Sept. 30, gage height, 2.93 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	392	541	760	577	495	677	935	2170	3050	1800	680	390
2	392	757	718	568	486	649	1130	3360	2610	2020	655	383
3	399	1630	671	557	456	626	1370	3840	3020	2230	640	378
4	423	1670	638	544	446	615	1240	2770	4150	2230	640	415
5	443	1350	613	536	455	587	1070	2060	4020	1980	630	510
6	402	1060	589	532	441	569	1030	1800	4400	1640	598	635
7	421	996	575	534	435	555	1130	1710	13400	1610	620	535
8	475	936	600	530	426	534	1360	1640	7310	1710	638	475
9	551	885	657	518	418	523	2070	1540	4680	1800	595	448
10	562	861	652	508	414	517	3100	1540	3680	1720	555	438
11	591	994	622	495	452	517	3180	1470	3560	1470	525	415
12	514	1090	615	486	478	522	3280	1400	4100	1310	530	448
13	770	1250	615	486	441	525	3100	1410	3810	1190	540	430
14	678	1300	600	496	454	536	3290	1420	3340	1110	558	413
15	562	1120	693	536	522	554	3430	1500	3530	1120	573	405
16	509	975	673	533	505	576	3470	2510	2990	1080	565	500
17	474	880	648	587	489	645	2610	4680	2860	1030	535	640
18	439	825	609	642	486	713	1840	5580	3430	1030	515	520
19	414	850	574	652	486	753	1540	5310	4110	1020	495	414
20	400	833	569	653	486	760	1340	4750	3980	985	478	376
21	385	812	564	644	511	754	1230	4350	3560	960	450	356
22	370	771	609	633	603	719	1170	5080	3190	895	455	338
23	360	738	730	624	675	735	1160	5590	2610	898	475	333
24	360	849	757	614	805	724	1100	5990	2020	866	480	328
25	845	801	723	601	820	681	1070	5280	1850	809	470	336
26	1670	760	688	583	767	654	1090	4610	2080	794	460	341
27	892	727	669	569	718	632	1930	4400	2280	778	445	361
28	764	727	636	557	682	593	3330	4000	2140	768	425	333
29	681	767	630	537	---	571	2430	3640	2040	795	417	308
30	614	778	633	510	---	634	2050	3500	1890	792	412	301
31	582	---	606	502	---	798	---	3200	---	760	405	---
TOTAL	17334	28533	19936	17344	14852	19448	58075	102100	109690	39200	16459	12503
MEAN	559	951	643	559	530	627	1936	3294	3656	1265	531	417
MAX	1670	1670	760	653	820	798	3470	5990	13400	2230	680	640
MIN	360	541	564	486	414	517	935	1400	1850	760	405	301
AC-FT	34380	56600	39540	34400	29460	38580	115200	202500	217600	77750	32650	24800

CAL YR 1984 TOTAL 515457 MEAN 1408 MAX 11300 MIN 360 AC-FT 1022000
WTR YR 1985 TOTAL 455474 MEAN 1248 MAX 13400 MIN 301 AC-FT 903400

0404

14232500 CISPUS RIVER NEAR RANDLE, WA

LOCATION.--Lat 46°26'50", long 121°51'46", in NW¼ sec.18, T.11 N., R.8 E., (unsurveyed), Lewis county, Hydrologic Unit 17080004, Gifford Pinchot National Forest, on left bank 60 ft upstream from bridge to Tower Rock ranger station, 4.1 mi downstream from North Fork, 8.0 mi southeast of Randle, and at mile 15.8.

DRAINAGE AREA.--321 mi².

PERIOD OF RECORD.--October 1910 to February 1912, September 1929 to current year.

REVISED RECORDS.--WSP 794: 1934. WSP 1288: Drainage area. WSP 1935: 1950-53, 1954(M), 1955-56, 1957(M), 1960.

GAGE.--Water-stage recorder. Datum of gage is 1,221.60 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1912, nonrecording gage at site 1.0 mi upstream at different datum. Sept. 28, 1929, to Nov. 26, 1949, Oct. 1-24, 1950, water-stage recorder at site 450 ft upstream at datum 0.26 ft higher.

REMARKS.--Estimated daily discharges: Feb. 3, 4. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--57 years (water years 1911, 1930-85), 1,344 ft³/s, 56.86 in/yr, 973,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s Jan. 15, 1974, gage height, 12.58 ft, from rating curve extended above 8,700 ft³/s on basis of slope-area measurement of peak flow; minimum, 183 ft³/s Dec. 30, 1936; minimum gage height, 2.55 ft Oct. 25, 1942, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 19	0100	4,100	6.93	June 7	0315	*9,990	*9.03
May 24	0600	4,170	6.95				

Minimum discharge, 376 ft³/s Sept. 29, 30; gage height, 3.78 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	404	541	992	631	554	688	903	1750	2290	886	525	400
2	404	1680	917	610	540	673	1120	2240	2210	884	497	399
3	404	1780	856	589	492	645	1380	2630	2110	890	501	398
4	414	1490	808	582	456	645	1360	2320	2330	880	502	402
5	409	1230	779	582	510	631	1320	2030	2330	855	494	443
6	398	1070	760	589	504	617	1400	1840	2660	797	482	519
7	404	1030	746	596	504	603	1640	1740	8370	788	496	448
8	414	953	756	589	504	596	1880	1650	6650	797	506	426
9	438	898	776	568	498	589	2270	1560	4260	780	472	418
10	468	1010	792	554	498	582	2760	1520	3200	773	465	467
11	480	1430	764	554	510	582	3160	1440	2710	734	454	438
12	480	1730	752	547	568	596	3320	1330	2610	702	456	431
13	603	2010	752	554	516	603	3020	1320	2500	681	456	461
14	568	1920	763	561	516	624	3130	1370	2210	660	453	465
15	516	1600	787	582	561	638	3310	1390	2110	650	453	465
16	502	1360	748	582	547	659	3330	1910	1950	638	451	446
17	482	1190	728	652	522	736	2760	2980	1810	627	446	554
18	471	1160	679	696	516	800	2370	3790	1820	611	443	514
19	464	1110	647	704	522	840	2050	3900	1840	608	435	473
20	460	1060	643	704	528	840	1780	3540	1760	603	434	452
21	454	989	640	696	534	849	1570	3040	1580	598	422	439
22	448	922	664	680	589	824	1420	3300	1450	576	417	430
23	444	996	725	659	638	885	1380	3540	1300	573	418	419
24	444	1030	736	659	712	903	1260	4050	1160	572	422	415
25	535	951	733	631	736	832	1180	3770	1090	546	423	412
26	706	894	728	617	704	793	1120	3360	1060	543	426	408
27	628	899	699	610	688	771	1290	2980	1050	536	423	403
28	603	1060	690	603	680	727	1570	2690	1010	525	413	396
29	574	1110	686	575	---	699	1570	2520	971	529	411	390
30	544	1060	688	547	---	723	1580	2380	924	537	411	378
31	531	---	666	547	---	800	---	2200	---	537	403	---
TOTAL	15094	36163	23100	18850	15647	21993	58203	76080	69325	20916	14010	13109
MEAN	487	1205	745	608	559	709	1940	2454	2311	675	452	437
MAX	706	2010	992	704	736	903	3330	4050	8370	890	525	554
MIN	398	541	640	547	456	582	903	1320	924	525	403	378
CFSM	1.52	3.75	2.32	1.89	1.74	2.21	6.04	7.64	7.20	2.10	1.41	1.36
IN.	1.75	4.19	2.68	2.18	1.81	2.55	6.75	8.82	8.03	2.42	1.62	1.52
AC-FT	29940	71730	45820	37390	31040	43620	115400	150900	137500	41490	27790	26000

CAL YR 1984 TOTAL 455438 MEAN 1244 MAX 5470 MIN 398 CFSM 3.88 IN. 52.78 AC-FT 903400
WTR YR 1985 TOTAL 382490 MEAN 1048 MAX 8370 MIN 378 CFSM 3.26 IN. 44.33 AC-FT 758700

14233400 COWLITZ RIVER NEAR RANDLE, WA

LOCATION.--Lat 46°28'13", long 122°05'51", in NE¼ sec.6, T.11 N., R.6 E., Lewis County, Hydrologic Unit 17080005, on right bank 0.5 mi downstream from Cispus River, 8.1 mi southwest of Randle, and at mile 89.3.

DRAINAGE AREA.--1,030 mi^{2}.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1947 to current year. Prior to October 1967, published as "near Kosmos." Records published for both sites October 1967 to September 1968. Monthly discharge only for some period published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 799.42 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1948, nonrecording gage at site 0.9 mi downstream at different datum. Dec. 3, 1948, to September 1967, at site 1.4 mi downstream at datum 40.13 ft lower (levels by city of Tacoma).

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Minor regulation by Packwood Lake (14225400) beginning June 1964. Small diversions for domestic use and irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--38 years, 4,953 ft^{3}/s, 65.30 in/yr, 3,588,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 89,300 ft^{3}/s Dec. 3, 1977, gage height, 26.54 ft; minimum, 518 ft^{3}/s Nov. 29, 1952, gage height, 2.34 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft^{3}/s and maximum (*):

Date	Time	Discharge (ft^{3}/s)	Gage height (ft)	Date	Time	Discharge (ft^{3}/s)	Gage height (ft)
June 7	2145	*27,900	*16.82	No other peak greater than base discharge.			

Minimum discharge, 940 ft^{3}/s Sept. 30, gage height, 6.16 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	1980	4050	2570	2020	3030	3890	6950	7610	3750	1860	1150
2	1050	4320	3740	2490	1960	2940	4840	8440	7330	3730	1720	1110
3	1070	7680	3450	2420	1850	2780	5840	10100	6940	3940	1660	1050
4	1120	7830	3160	2380	1660	2730	5980	9140	7790	3980	1670	1040
5	1190	6600	2970	2330	1790	2610	5400	7660	8670	3880	1650	1110
6	1080	5380	2810	2310	1760	2490	5240	6750	8250	3500	1580	1700
7	1050	4990	2730	2310	1760	2390	5760	6220	21000	3240	1600	1710
8	1100	4580	2830	2330	1740	2290	6730	5900	23200	3270	1690	1390
9	1240	4260	2970	2280	1690	2230	8010	5550	15300	3320	1540	1240
10	1350	4280	3000	2200	1660	2190	10100	5410	11800	3360	1440	1240
11	1530	5240	2810	2150	1750	2170	10700	5260	10200	3110	1380	1240
12	1420	5990	2830	2090	2000	2190	11000	4860	10100	2880	1390	1120
13	2120	7070	2780	2030	1840	2190	10500	4700	10000	2670	1420	1270
14	2310	7270	2780	2060	1800	2200	10600	4820	8760	2540	1430	1240
15	1900	6200	3130	2300	2020	2230	11000	4810	8680	2480	1440	1180
16	1680	5310	2960	2330	2070	2320	11100	6020	8020	2440	1470	1140
17	1630	4640	2820	2480	1990	2560	9840	10000	7220	2390	1410	1550
18	1530	4390	2620	2790	1940	2850	8340	12600	7420	2340	1370	1790
19	1460	4430	2460	2890	1950	3070	7150	12700	7880	2310	1350	1550
20	1400	4240	2450	2890	2040	3160	6150	11600	7830	2270	1310	1420
21	1350	3970	2400	2830	2050	3200	5390	10200	6920	2230	1250	1290
22	1310	3680	2570	2750	2340	3080	4900	10900	6270	2130	1200	1230
23	1270	3690	2980	2680	2700	3170	4820	11800	5630	2070	1280	1190
24	1260	4090	3190	2610	3140	3320	4540	12900	4890	2050	1330	1150
25	1900	3750	3100	2530	3620	3060	4200	12300	4400	1980	1290	1130
26	4290	3500	2990	2450	3480	2870	3960	11000	4300	1910	1270	1120
27	3250	3520	2970	2360	3260	2750	4740	10200	4450	1870	1250	1110
28	2930	3900	2830	2320	3090	2580	7520	9410	4380	1820	1190	1060
29	2510	4250	2790	2220	---	2530	7430	8650	4120	1820	1150	977
30	2240	4260	2820	2090	---	2640	6900	8370	3950	1860	1150	946
31	2100	---	2740	2040	---	3380	---	7730	---	1890	1140	---
TOTAL	52700	145290	90730	74510	60970	83210	212570	262950	253310	83030	43880	37443
MEAN	1700	4843	2927	2404	2178	2684	7086	8482	8444	2678	1415	1248
MAX	4290	7830	4050	2890	3620	3380	11100	12900	23200	3980	1860	1790
MIN	1050	1980	2400	2030	1660	2170	3890	4700	3950	1820	1140	946
CFSM	1.65	4.70	2.84	2.33	2.11	2.61	6.88	8.23	8.20	2.60	1.37	1.21
IN.	1.90	5.25	3.28	2.69	2.20	3.01	7.68	9.50	9.15	3.00	1.58	1.35
AC-FT	104500	288200	180000	147800	120900	165000	421600	521600	502400	164700	87040	74270

CAL YR 1984 TOTAL 1754660 MEAN 4794 MAX 24700 MIN 1030 CFSM 4.65 IN. 63.37 AC-FT 3480000
WTR YR 1985 TOTAL 1400593 MEAN 3837 MAX 23200 MIN 946 CFSM 3.73 IN. 50.58 AC-FT 2778000

14233400 COWLITZ RIVER NEAR RANDLE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1952 to September 1985 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1952 to August 1968, April 1969 to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 18...	1115	71	7.80	5.5	13.1	--	--	<0.10	<0.2	0.01
NOV 07...	1355	62	7.40	6.0	13.4	--	K3	0.20	0.3	0.05
DEC 11...	1045	71	7.70	3.5	13.2	--	K3	<0.10	0.2	0.01
JAN 16...	1045	72	7.70	4.0	13.4	104	K6	<0.10	<0.2	0.01
FEB 13...	1200	70	7.70	3.0	14.1	107	<1	<0.10	<0.2	<0.01
MAR 12...	1030	75	7.90	5.5	12.5	101	<1	<0.10	<0.2	0.01
APR 16...	1645	47	7.50	6.0	12.6	104	K6	<0.10	0.4	0.05
MAY 08...	1145	54	7.80	6.5	12.9	108	K2	<0.10	0.2	0.02
JUN 12...	1430	42	7.50	10.0	10.8	98	K16	<0.10	0.2	0.06
JUL 09...	1430	51	7.70	16.5	9.9	104	K15	<0.10	<0.2	0.04
AUG 15...	1545	64	7.30	16.5	9.6	101	K16	<0.10	<0.2	0.03
SEP 11...	1530	71	7.70	12.0	10.5	101	K18	<0.10	<0.2	0.02

K - Results based on colony count outside the acceptable range (non-ideal colony count).

14234800 RIFFE LAKE NEAR MOSSYROCK, WA

LOCATION.--Lat 46°32'07", long 122°25'25", in SE¼SW¼ sec.10, T.12 N., R.3 E., Lewis County, Hydrologic Unit 17080005, in emergency generator room on top of Mossyrock Dam on Cowlitz River, 2.8 mi east of Mossyrock, and at mile 65.5.

DRAINAGE AREA.--1,154 mi^2.

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WDR WA-74-1: 1973.

GAGE.--Water-stage recorder; nonrecording gage prior to July 25, 1968. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by city of Tacoma).

REMARKS.--Reservoir is formed by concrete arch dam, completed in April 1968; storage began Apr. 3, 1968. Usable capacity, 1,297,400 acre-ft between elevations 600 ft, minimum operating level, and 770 ft, normal operating pool. Unused storage below elevation 600 ft, 288,900 acre-ft. Crest of spillway is at elevation 728.5 ft and top of taintor gates are at elevation 778.5 ft. Water used by city of Tacoma for power development. Elevation records collected in cooperation with city of Tacoma. Figures given herein represent total contents. Capacity table furnished by city of Tacoma.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,686,300 acre-ft July 31, 1972, elevation, 778.63 ft; minimum since normal low operating level was attained, 658,503 acre-ft Mar. 17, 1977, elevation, 666.88 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,682,392 acre-ft June 13, elevation, 778.30 ft; minimum, 732,679 acre-ft Mar. 21, elevation, 677.22 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	757.81	1,453,006	—
Oct. 31	745.91	1,330,653	-122,353
Nov. 30	742.55	1,297,277	-33,376
Dec. 31	721.08	1,094,530	-202,747
CAL YR 1984	—	—	+52,485
Jan. 31	694.72	868,388	-226,142
Feb. 28	681.68	766,178	-102,210
Mar. 31	680.01	753,545	-12,633
Apr. 30	719.15	1,077,114	+323,569
May 31	762.24	1,500,428	+423,314
June 30	774.41	1,636,858	+136,430
July 31	738.35	1,256,233	-380,625
Aug. 31	730.26	1,179,156	-77,077
Sept. 30	722.75	1,109,703	-69,453
WTR YR 1985	—	—	-343,303

14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA

LOCATION.--Lat 46°35'44", long 122°27'30", in NE¼SW¼ sec.20, T.13 N., R.3 E., Lewis County, Hydrologic Unit 17080005, on right bank 0.9 mi upstream from Bear Canyon Creek, 3.5 mi southeast of Cinebar, and at mile 7.1.

DRAINAGE AREA.--141 mi².

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WDR WA-72-1: 1957(M), 1959(P), 1960(P), 1961(M), 1963(P), 1964(M), 1965, 1967(P), 1971(P).

GAGE.--Water-stage recorder. Elevation of gage is 600 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 20, Jan. 26, 27, 30, Feb. 3. Water-discharge records good. Several small diversions for municipal and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station. Water temperatures May 1965 to September 1982.

AVERAGE DISCHARGE.--29 years, 842 ft³/s, 81.09 in/yr, 610,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s Dec. 2, 1977, gage height, 17.00 ft, from rating curve extended above 10,500 ft³/s on basis of slope-area measurement at gage height of 14.79 ft; minimum, 52 ft³/s Sept. 27-29, 1967; minimum gage height, 1.96 ft Aug. 31, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 3	1415	*4,510	*7.65				

Minimum discharge, 66 ft³/s Aug. 27-30, gage height, 2.09 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	590	1540	836	365	828	2030	1060	331	194	158	77
2	83	2610	1250	749	342	754	1890	1070	337	186	125	80
3	82	3860	1040	714	312	692	1680	1120	317	176	107	73
4	90	4070	888	712	295	709	1310	1010	377	170	99	70
5	106	2600	780	697	313	648	1090	922	353	163	96	91
6	93	1750	699	699	298	600	1020	805	383	160	92	318
7	91	1780	686	723	315	555	1120	734	2380	154	98	267
8	90	1540	859	718	300	524	1160	683	1870	149	161	185
9	136	1490	864	673	288	504	1270	629	1160	144	123	155
10	342	1670	798	626	291	499	1320	648	850	137	108	255
11	421	2120	704	587	440	494	1290	633	682	136	101	216
12	351	2030	694	560	716	494	1300	565	585	132	94	182
13	685	1950	666	535	514	477	1110	543	517	129	89	222
14	704	1830	1020	575	516	473	1040	592	496	124	85	273
15	560	1410	1310	755	889	476	980	561	467	120	82	326
16	425	1120	999	706	757	500	913	620	407	119	80	312
17	342	934	854	756	648	572	756	685	369	119	77	647
18	290	1060	738	793	581	582	697	648	339	115	76	504
19	255	1380	667	735	584	566	642	577	317	110	75	368
20	230	1410	625	702	657	666	588	516	300	106	75	295
21	209	1190	607	663	709	707	524	475	285	104	75	251
22	194	985	1180	621	1070	681	555	461	270	102	75	221
23	184	1130	1740	590	1120	961	962	455	259	101	73	198
24	180	1220	1500	561	1530	1040	930	445	251	102	70	180
25	492	1040	1220	528	1500	846	868	418	241	102	69	166
26	796	898	1050	485	1180	735	848	385	230	97	68	154
27	939	1030	984	450	986	686	1940	363	221	94	66	144
28	1140	1960	875	433	883	618	2090	339	214	91	66	135
29	845	2190	860	410	---	575	1480	344	207	89	66	127
30	731	1960	1050	385	---	1280	1180	368	202	88	70	121
31	680	---	976	367	---	1910	---	327	---	100	87	---
TOTAL	11851	50807	29723	19344	18399	21652	34583	19001	15217	3913	2786	6613
MEAN	382	1694	959	624	657	698	1153	613	507	126	89.9	220
MAX	1140	4070	1740	836	1530	1910	2090	1120	2380	194	161	647
MIN	82	590	607	367	288	473	524	327	202	88	66	70
CFSM	2.71	12.0	6.80	4.43	4.66	4.95	8.18	4.35	3.60	.89	.64	1.56
IN.	3.13	13.40	7.84	5.10	4.85	5.71	9.12	5.01	4.01	1.03	.74	1.74
AC-FT	23510	100800	58960	38370	36490	42950	68600	37690	30180	7760	5530	13120

CAL YR 1984 TOTAL 320556 MEAN 876 MAX 7300 MIN 82 CFSM 6.21 IN. 84.57 AC-FT 635800
WTR YR 1985 TOTAL 233889 MEAN 641 MAX 4070 MIN 66 CFSM 4.55 IN. 61.71 AC-FT 463900

14237800 MAYFIELD RESERVOIR NEAR SILVER CREEK, WA

LOCATION.--Lat 46°30'13", long 122°35'11", in SE¼SW¼ sec.20, T.12 N., R.2 E., Lewis County, Hydrologic Unit 17080005, on right bank at Mayfield Dam on Cowlitz River, 0.3 mi downstream from Silver Creek, 4 mi south of town of Silver Creek, and at mile 52.0.

DRAINAGE AREA.--1,392 mi².

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 5, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch dam, completed April 1962; storage began Apr. 14, 1962. Usable capacity, 21,380 acre-ft between elevation 415 ft, lower limit of operation, and 425 ft, top of taintor gates. Dead storage below elevation 415 ft, 112,340 acre-ft. Crest of spillway is at elevation 385 ft. Water is used by city of Tacoma for power development. Figures given herein represent total contents. Capacity table furnished by city of Tacoma.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 134,850 acre-ft Dec. 9, 1971, elevation, 425.50 ft; minimum since normal operating level was attained, 112,830 acre-ft June 4, 1969, elevation, 415.24 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,764 acre-ft Oct. 26, elevation, 425.02 ft; minimum, 125,572 acre-ft Apr. 3, elevation, 421.31 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	423.91	131,282	--
Oct. 31	424.52	132,644	+1,362
Nov. 30	424.42	132,424	-220
Dec. 31	424.29	132,128	-296
CAL YR 1984	--	--	+912
Jan. 31	424.14	131,792	-336
Feb. 28	423.39	130,128	-1,664
Mar. 31	423.15	129,595	-533
Apr. 30	422.88	129,006	-589
May 31	424.04	131,568	+2,562
June 30	422.45	128,060	-3,508
July 31	424.27	132,084	+4,024
Aug. 31	423.77	130,971	-1,113
Sept. 30	423.45	130,260	-711
WTR YR 1985	--	--	-1,022

14237900 MAYFIELD POWERPLANT TAILWATER NEAR SILVER CREEK, WA

LOCATION.--Lat 46°30'15", long 122°35'12", in SE¼SW¼ sec.20, T.12 N., R.2 E., Lewis County, Hydrologic Unit 17080005. Sampling site is at the downstream side of the powerhouse about 1.4 mi upstream from gaging station (14238000).

PERIOD OF RECORD.--Water years 1978 to September 1985 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
OCT										
18...	1345	56	7.60	10.0	12.0	--	K1	<0.10	0.3	0.01
NOV										
07...	1615	51	7.10	11.0	11.6	--	K15	0.20	0.3	0.06
DEC										
11...	1245	55	7.30	7.5	12.3	--	<1	0.10	0.3	0.01
JAN										
16...	1245	57	7.80	5.5	13.2	--	<1	0.10	<0.2	<0.01
FEB										
13...	1430	59	7.60	4.5	13.5	--	K2	0.10	0.5	<0.01
MAR										
12...	1245	61	7.70	5.5	13.4	--	<1	0.20	0.5	0.02
APR										
16...	1355	60	7.60	7.0	11.9	99	<1	0.10	0.6	<0.01
MAY										
08...	1400	53	7.70	8.5	13.0	111	<1	0.20	0.5	0.01
JUN										
12...	1115	64	7.50	8.0	10.8	1310	K6	0.10	0.4	<0.01
JUL										
09...	1130	61	7.50	10.5	10.2	92	<1	<0.10	<0.2	<0.01
AUG										
15...	1215	52	7.20	11.0	11.0	101	K1	<0.10	<0.2	<0.01
SEP										
11...	1215	51	7.40	12.0	10.4	98	K1	<0.10	0.3	<0.01

K - Results based on colony count outside the acceptable range (non-ideal colony count).

14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WA

LOCATION.--Lat 46°30'38", long 122°36'54", in SE¼NE¼ sec.24, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005, on right bank 1.1 mi upstream from fish barrier dam, 1.4 mi downstream from Mayfield Dam, 1.5 mi upstream from Mill Creek, 2.1 mi downstream from Winston Creek, and at mile 50.6.

DRAINAGE AREA.--1,400 mi^2.

PERIOD OF RECORD.--August to October 1910, December 1910 to September 1911, October to November 1911 (monthly discharge only), April 1934 to current year. Published as "at Mayfield" water years 1910-11 and "near Mayfield" water years 1934-61.

REVISED RECORDS.--WSP 1318: 1949(M). WSP 1348: Drainage area. WSP 1718: 1943, 1947.

GAGE.--Water-stage recorder. Datum of gage is 226.6 ft above National Geodetic Vertical Datum of 1929. August 1910 to November 1911 nonrecording gage at site 2.5 mi upstream at different datum. Apr. 27 to July 2, 1934, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Riffe Lake (station 14234800) at mile 65.5 and Mayfield Reservoir (station 14237800) at mile 52.0. Minor diversions for domestic and farm use upstream from station. U.S. Geological Survey satellite telemeter at station. Sediment records October 1978 to September 1982. Water temperatures October 1950 to September 1982.

AVERAGE DISCHARGE.--51 years (water years 1935-85), 6,310 ft^3/s, 61.21 in/yr, 4,572,000 acre-ft/yr, adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft^3/s Dec. 13, 1946; maximum gage height, 25.26 ft Dec. 4, 1975; minimum discharge, 37 ft^3/s Apr. 16, 1962, gage height, 6.42 ft; minimum daily, 451 ft^3/s Apr. 16, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1933 is known to have exceeded that of Dec. 13, 1946.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,300 ft^3/s June 13, gage height, 14.29 ft; minimum, 2,430 ft^3/s May 29, gage height, 9.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3760	4830	9810	8920	5480	4560	3730	2560	2540	8400	5280	2620
2	3760	4960	9830	9240	5400	4590	3660	2560	2530	8820	3460	2620
3	3740	5030	10000	9290	5410	4570	3670	2550	2510	8820	2960	2620
4	3740	5010	9400	9310	5390	4530	3640	2550	2510	8810	3140	2620
5	3740	5020	8790	8520	5400	4300	3660	2540	2520	8640	3140	2620
6	3750	5140	8780	8960	5410	4280	3660	2540	2600	9260	3130	2730
7	3750	8250	8280	9270	5420	4360	3660	2530	4980	9450	3130	2900
8	3750	8360	7550	8070	5410	4250	3660	2530	11200	10700	3080	2920
9	3740	8340	7540	7670	5380	4270	3650	2520	11700	10600	2910	2900
10	3760	8350	7320	7370	5390	4280	3650	2520	9840	9500	2840	2910
11	3760	8360	7040	7320	5380	5040	3620	2510	7620	9230	2850	2900
12	3770	8360	7550	5850	5340	4710	3620	2520	8990	8630	2780	2900
13	3760	8360	7550	5380	5330	4220	3620	2530	12400	9080	2570	2890
14	3750	8340	7550	7120	5350	4210	3620	2510	13100	7360	2570	2900
15	3880	8370	7590	6780	5370	4230	3620	2520	12200	9670	2590	2900
16	4200	8360	7610	7000	5390	4190	3620	2530	11600	9870	2580	2900
17	4370	8350	8520	7170	5360	4210	3610	2530	10700	8950	2580	2900
18	4370	8340	9250	6900	5340	4160	3620	2530	9620	9020	2580	2890
19	4370	8510	9950	5520	5330	4100	3620	2530	8370	9850	2590	2900
20	4380	8970	9240	5370	5340	3830	3620	2540	7910	9400	2590	2900
21	4380	9840	9250	7050	5340	3620	3620	2520	7450	7940	2590	2910
22	4370	9790	8480	5610	5360	3610	3650	2520	6850	9780	2590	2910
23	4530	9800	9300	5340	5380	3630	3680	2520	6820	9780	2590	2910
24	4670	9760	9270	5610	5380	3660	3660	2520	7760	9520	2590	2900
25	4670	9780	9280	5820	5340	3650	3610	2520	7600	9090	2600	2900
26	4750	9780	9330	5680	4870	3640	2930	2520	5790	10100	2600	2910
27	4820	9780	9340	6000	4520	3620	2920	2520	6770	9800	2610	2910
28	4830	9820	9350	7170	4540	3600	2930	2510	6970	9990	2600	2900
29	4830	9820	8970	9640	---	3630	2890	2510	6130	9550	2610	2920
30	4830	9800	8510	10100	---	3660	2640	2510	6680	10200	2620	2900
31	4830	---	9310	9110	---	3650	---	2520	---	9600	2610	---
TOTAL	129610	245580	269540	228360	148350	126860	105360	78340	224260	289410	87960	85510
MEAN	4181	8186	8695	7366	5298	4092	3512	2527	7475	9336	2837	2850
MAX	4830	9840	10000	10100	5480	5040	3730	2560	13100	10700	5280	2920
MIN	3740	4830	7040	5340	4520	3600	2640	2510	2510	7360	2570	2620
AC-FT	257100	487100	534600	453000	294300	251600	209000	155400	444800	574000	174500	169600
MEAN†	2213	7623	5392	3683	3429	3876	8943	9452	9711	3210	1566	1672
CFSM†	1.58	5.44	3.85	2.63	2.45	2.77	6.39	6.75	6.94	2.29	1.12	1.19
IN.†	1.82	6.08	4.44	3.04	2.55	3.19	7.13	7.79	7.74	2.65	1.29	1.33
AC-FT†	136100	453500	331600	226500	190400	238400	532000	581300	577700	197400	96310	99440

CAL YR 1984 TOTAL 2355200 MEAN 6435 MAX 14300 MIN 2550 AC-FT 4672000 MEAN† 6506 CFSM† 4.65 IN.† 63.32 AC-FT† 4725000
WTR YR 1985 TOTAL 2019140 MEAN 5532 MAX 13100 MIN 2510 AC-FT 4005000 MEAN† 5056 CFSM† 3.61 IN.† 49.06 AC-FT† 3661000

† Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

14238543 INLET TO BLUE CREEK TROUT HATCHERY PONDS NEAR TOLEDO, WA

LOCATION.--Lat 46°29'07", long 122°43'38", in SW¼NE¼ sec. 31, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005. Sampling site is in feeder canal to trout rearing ponds.

PERIOD OF RECORD.--Water year 1980 to September 1985 (discontinued).

REMARKS.--Records for August and September 1980 published as a miscellaneous site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
OCT				
18...	1550	7.60	10.5	0.02
NOV				
07...	1745	7.10	9.5	0.01
DEC				
11...	1445	7.50	7.5	<0.01
JAN				
16...	1445	7.60	6.0	0.02
FEB				
13...	1625	7.80	5.0	0.02
MAR				
12...	1445	7.80	6.0	0.01
APR				
16...	1235	7.80	8.0	0.03
MAY				
08...	1550	8.10	10.0	0.02
AUG				
15...	1122	7.30	12.0	--
SEP				
11...	1115	7.70	12.0	0.02

14238544 BLUE CREEK HATCHERY TROUT POND NO. 1 NEAR TOLEDO, WA

LOCATION.--Lat 46°29'07", long 122°43'38", in SW¼NE¼ sec.31, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005. Sampling site is in the most shoreward trout rearing pond from right bank of Cowlitz River.

PERIOD OF RECORD.--Water year 1980 to September 1985 (discontinued).

REMARKS.--Records for August and September 1980 published as a miscellaneous site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (FEET)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
OCT					
18...	1530	1.00	7.70	10.0	0.07
18...	1540	7.00	7.60	10.0	0.07
NOV					
07...	1800	1.00	6.70	9.5	0.01
07...	1805	7.00	6.90	9.5	0.01
DEC					
11...	1415	1.00	7.40	6.5	0.09
11...	1430	7.00	7.30	7.0	0.09
JAN					
16...	1415	1.00	7.60	6.0	0.09
16...	1430	7.00	7.40	5.5	0.09
FEB					
13...	1545	1.00	7.60	5.0	0.08
13...	1555	7.00	7.70	5.0	0.08
MAR					
12...	1415	1.00	7.60	7.5	0.14
12...	1430	7.00	7.50	7.0	0.13
APR					
16...	1200	1.00	7.50	11.0	0.16
16...	1215	7.00	7.50	10.0	0.14
MAY					
08...	1515	1.00	7.80	11.5	0.01
08...	1530	7.00	8.00	11.0	0.02
AUG					
15...	1050	1.00	7.30	16.0	0.02
15...	1105	7.00	7.60	14.0	0.09
SEP					
11...	1040	1.00	7.70	12.5	0.03
11...	1055	7.00	7.80	12.0	0.03

14240352 COLDWATER LAKE CANAL NEAR SPIRIT LAKE, WA

LOCATION.--Lat 46°17'16", long 122°16'10", in NW¼SE¼ sec.2, T.9 N., R.4 E., Cowlitz County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, on right bank 1,000 ft downstream from outlet of Coldwater Lake, 5.8 mi west of Spirit Lake, and 1.5 mi upstream from mouth.

DRAINAGE AREA.--36.2 mi^2, since April 1985. Prior to April 1985, 17.5 mi^2.

PERIOD OF RECORD.--January to September 1985.

GAGE.--Water-stage recorder. Elevation of gage is 2,500 ft, from topographic map.

REMARKS.--Estimated daily discharges: April 12-23, Aug. 24-26, and Sept. 3. Records good except for periods of estimated record, which are fair. Transbasin diversions upstream from station through Harrys Ridge through Spirit Lake Tunnel. Tunnel inlet regulated by gate valve. Diversion discharges not measured. Several measurements of water temperature were made during the year. Satellite telemeter at station. Recording rain gage at station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period January to September, 864 ft^3/s Apr. 10, gage height, 29.48 ft; maximum gage height, 30.3 ft May 24 (backwater from log jam); minimum daily, 42 ft^3/s Feb. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	50	75	100	141	263	399	354	170
2				---	50	75	105	159	200	443	409	166
3				---	47	70	127	191	171	502	373	141
4				---	44	70	129	190	165	467	309	130
5				---	44	70	128	170	170	472	330	139
6				---	43	70	121	159	180	482	313	124
7				---	42	69	153	217	375	498	309	87
8				---	42	66	190	262	481	549	284	88
9				---	43	65	202	285	461	544	261	82
10				---	44	63	310	300	482	470	301	84
11				55	46	60	538	311	543	465	237	77
12				56	51	60	335	313	544	451	233	78
13				55	50	60	290	292	551	382	306	78
14				53	50	59	265	239	515	324	318	85
15				53	53	61	250	286	532	315	320	93
16				54	52	53	240	367	522	339	283	125
17				54	51	63	225	454	541	376	212	133
18				52	50	68	210	514	506	388	192	131
19				51	49	72	197	547	495	363	206	213
20				52	50	77	180	511	501	383	247	194
21				54	50	82	160	396	485	413	238	195
22				56	55	87	140	484	472	402	224	182
23				55	60	112	123	561	424	373	192	183
24				57	73	127	122	623	442	387	178	185
25				57	79	117	115	742	456	377	180	175
26				58	80	103	107	794	462	375	195	159
27				58	80	97	115	744	432	311	215	159
28				56	76	92	133	688	469	305	201	164
29				55	---	81	138	683	465	243	200	148
30				52	---	77	137	640	414	326	207	161
31				51	---	84	---	392	---	386	197	---
TOTAL				---	1504	2395	5585	12655	12719	12510	8024	4129
MEAN				---	53.7	77.3	186	408	424	404	259	138
MAX				---	80	127	538	794	551	549	409	213
MIN				---	42	59	100	141	165	243	178	77
AC-FT				---	2980	4750	11080	25100	25230	24810	15920	8190

14240400 NORTH FORK TOUTLE RIVER ABOVE BEAR CREEK, NEAR KID VALLEY, WA

LOCATION.--Lat 46°16'48", long 122°22'17", in SE¼SE¼ sec.7, T.9 N., R.4 E., Cowlitz County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, on left bank, 14.6 mi southeast of Kid Valley.

DRAINAGE AREA.--79.2 mi².

PERIOD OF RECORD.--October 1984 to September 1985.

COOPERATION.--U.S. Corps of Engineers.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SEDIMENT CONCENTRATION (MG/L)	SEDIMENT DISCHARGE* (TONS/DAY)
DEC					
28...	1040	701	3.0	7010	13300
JAN					
03...	1400	499	4.0	3010	4060
08...	1655	478	5.0	1050	1360
10...	1340	406	6.0	702	770
17...	1300	482	8.0	485	631
23...	1330	466	7.0	872	1100
FEB					
01...	1450	415	3.0	318	356
08...	1415	399	5.5	254	274
11...	1345	418	6.5	1540	1740
19...	1345	663	4.5	8780	15700
27...	1300	705	9.0	6840	13000
MAR					
05...	1345	444	7.0	712	854
12...	1300	478	8.0	194	250
29...	1230	564	7.0	5780	8800
APR					
04...	1210	510	8.0	746	1030
11...	1440	1410	9.0	28800	110000
19...	1245	567	5.0	16100	24600
27...	1235	444	9.0	804	964
MAY					
06...	1250	363	10.5	731	716
07...	1115	474	12.0	1140	1460
10...	1400	525	9.0	3520	4990
17...	1545	991	11.0	23000	61500
23...	1155	1090	13.5	23700	69700
28...	1440	1690	12.0	37400	171000
JUN					
07...	1150	1820	13.0	124000	609000
07...	1325	1820	13.0	75400	371000
08...	----	e2200	----	40000	238000
11...	1345	931	18.5	19600	49300
19...	1315	748	20.0	8980	18100
JUL					
01...	1130	845	17.0	8470	19300
12...	1240	605	19.0	7040	11500
AUG					
01...	1240	638	19.0	10500	18100
21...	1320	339	16.0	665	609
SEP					
06...	1400	194	11.5	1900	995

* Sediment discharges shown are estimated instantaneous values. The values were calculated by multiplying the water discharge times the sediment concentration times the coefficient of 0.0027 to get sediment discharge in tons per day. They do not reflect the actual sediment discharge for the given date.

e Estimated.

14240800 GREEN RIVER ABOVE BEAVER CREEK, NEAR KID VALLEY, WA

LOCATION.--Lat 46°22'55", long 122°31'21", in SE¼NW¼ sec.2, T.10 N., R.2 E., Cowlitz County, Hydrologic Unit 17080005, on right bank 0.1 mi downstream from logging bridge, 4.5 mi northeast of Kid Valley.

DRAINAGE AREA.--129 mi².

PERIOD OF RECORD.--September 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 824.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 19-23. Records fair. No regulation or diversion upstream from station. Some quality of water data available for this station.

AVERAGE DISCHARGE.--5 years, 541 ft³/s, 56.96 in/yr, 392,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft³/s Jan. 24, 1982, gage height, 12.11 ft from floodmark; minimum daily, 54 ft³/s Aug. 30, 1985.

The peak discharges greater than base discharge of 3,400 ft³/s and maximum (*) were not reported for water years 1981-84 and are shown below:

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 7, 1980	0230	4,130	8.88	Jan. 24, 1982	0430	*10,300	*12.11
Dec. 2, 1980	1500	5,100	9.50	Feb. 17, 1982	1200	3,890	8.69
Dec. 26, 1980	0300	*6,380	*10.20	Feb. 20, 1982	1545	6,220	10.42
Dec. 27, 1980	0500	4,050	8.77	Dec. 3, 1982	2200	*8,210	*10.49
June 8, 1981	1245	3,570	8.18	Jan. 8, 1983	0500	4,810	9.28
Dec. 5, 1981	1600	5,920	9.54	Jan. 3, 1984	1100	4,200	9.35
Jan. 16, 1982	2130	4,380	8.83	Jan. 25, 1984	0445	*4,940	*9.82

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 3,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 7	1600	*3,910	*8.65	No other peak greater than base discharge.			

Minimum daily discharge, 54 ft³/s Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	421	1090	495	252	478	694	731	618	213	160	58
2	68	1700	868	440	257	429	742	831	611	211	111	61
3	67	2020	720	423	232	398	826	914	557	213	92	57
4	69	1670	637	420	211	409	748	771	629	207	84	57
5	76	1230	564	411	244	382	673	664	627	196	80	81
6	72	974	501	405	232	361	670	576	640	184	77	203
7	73	843	465	409	237	337	735	535	2480	174	81	146
8	72	710	506	411	227	320	813	513	1740	168	132	113
9	90	652	485	392	235	312	847	479	1170	165	104	132
10	116	708	503	367	232	308	818	498	948	159	95	224
11	134	789	453	354	380	301	955	489	769	153	87	166
12	140	983	490	341	453	307	963	438	711	144	81	144
13	328	1380	527	331	313	298	833	415	675	138	77	162
14	294	1320	621	334	352	292	802	493	589	132	73	193
15	231	1060	700	368	545	289	814	442	584	127	70	206
16	185	874	585	351	430	295	826	534	521	123	68	171
17	160	739	512	374	371	323	689	813	468	120	66	287
18	144	743	438	393	332	331	607	846	468	114	64	261
19	135	666	399	387	336	338	564	804	456	106	64	196
20	132	623	366	395	387	363	499	706	429	100	64	164
21	125	564	360	392	399	386	439	646	393	96	63	146
22	118	498	554	375	613	370	435	682	354	95	62	133
23	115	722	718	361	616	531	600	720	314	93	60	120
24	131	767	748	342	730	540	600	766	282	96	58	111
25	458	635	653	323	710	478	590	791	262	93	58	105
26	724	538	591	310	618	436	554	647	258	87	56	97
27	579	724	591	302	543	422	750	588	261	83	55	94
28	552	1510	546	295	493	385	980	564	250	83	56	89
29	448	1630	594	283	---	357	891	629	238	80	55	85
30	399	1380	751	255	---	434	781	632	228	78	54	82
31	367	---	605	252	---	609	---	552	---	84	62	---
TOTAL	6670	29073	18141	11291	10980	11819	21738	19709	18530	4115	2369	4144
MEAN	215	969	585	364	392	381	725	636	618	133	76.4	138
MAX	724	2020	1090	495	730	609	980	914	2480	213	160	287
MIN	67	421	360	252	211	289	435	415	228	78	54	57
CFSM	1.67	7.51	4.53	2.82	3.04	2.95	5.62	4.93	4.79	1.03	.59	1.07
IN.	1.92	8.38	5.23	3.26	3.17	3.41	6.27	5.68	5.34	1.19	.68	1.20
AC-FT	13280	57670	35980	22400	21780	23440	43120	39090	36750	8160	4700	8220

CAL YR 1984	TOTAL	215721	MEAN	589	MAX	4180	MIN	66	CFSM	4.57	IN.	62.21	AC-FT	427900
WTR YR 1985	TOTAL	158579	MEAN	434	MAX	2480	MIN	54	CFSM	3.36	IN.	45.73	AC-FT	314500

14241100 NORTH FORK TOUTLE RIVER AT KID VALLEY, WA

LOCATION.--Lat 46°21'55", long 122°37'40", in NE¼SW¼ sec.12, T.10 N., R.1 E., Cowlitz County, Hydrologic Unit 17080005, on right bank at downstream side of bridge on State Highway 504, 0.8 mi southwest of Kid Valley, and 6.9 mi upstream from confluence with South Fork.

DRAINAGE AREA.--284 mi², of which approximately 21 mi² is noncontributing. Prior to July 7, 1981, the noncontributing portion was approximately 40 mi².

PERIOD OF RECORD.--June 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 575.80 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Estimated daily discharges: Oct. 2-4, 10-19, Aug. 29 to Sept. 7. Records fair. No regulation or diversion upstream from station. Some quality of water data available from Washington office for this station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--5 years, 1,378 ft³/s, 65.89 in/yr, 998,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s Mar. 19, 1982, gage height, 30.47 ft, gage height was affected by backwater from mudflow caused by an eruption of Mount St. Helens; minimum daily, 114 ft³/s Oct. 17, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 45.5 ft May 18, 1980 (1700 hours), from floodmarks, due to backwater from mudflow resulting from eruption of Mount St. Helens; discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,900 ft³/s June 7, gage height, 24.66 ft; minimum daily, 250 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	250	1410	2900	1380	642	1280	2080	1650	1390	888	660	420
2	300	4570	2230	1180	631	1170	2030	1720	1340	902	621	410
3	350	4270	1780	1040	610	1050	2060	1800	1250	904	604	400
4	400	2970	1480	1030	726	1080	1740	1600	1440	890	623	390
5	355	2320	1330	1030	638	1040	1520	1500	1590	849	600	400
6	356	2100	1270	1050	657	994	1490	1480	1820	846	600	430
7	347	1960	1280	1090	734	947	1500	1420	4870	821	625	400
8	356	1700	1320	1120	748	934	1480	1350	4130	812	654	388
9	394	1900	1310	1090	760	912	1480	1320	3410	799	581	406
10	700	3300	1320	1060	776	849	1620	1390	2400	767	582	489
11	950	3920	1260	1010	1110	799	2190	1370	2020	766	567	419
12	1000	3700	1300	947	1190	770	2180	1330	1920	763	537	401
13	1150	4000	1320	933	1000	720	1910	1360	1740	725	547	419
14	1150	3230	1610	947	1070	718	1680	1470	1620	691	538	437
15	1100	2410	1510	951	1330	731	1610	1420	1750	679	529	442
16	1050	1860	1350	930	1160	750	1640	1570	1510	685	514	445
17	1000	1640	1290	922	1090	790	1430	1680	1330	693	478	543
18	950	1750	1170	867	1030	830	1360	1860	1220	693	458	496
19	830	1630	1090	870	1040	873	1420	1820	1210	671	456	492
20	694	1620	1030	934	1080	1090	1300	1730	1170	652	469	468
21	652	1700	1010	911	1060	1200	1180	1610	1160	644	464	450
22	667	1680	1480	913	1280	1110	1250	1740	1090	638	449	429
23	685	2010	2110	927	1330	1310	1500	1730	1040	623	423	405
24	675	1690	2050	895	1460	1400	1450	1850	1010	615	411	398
25	1060	1430	1820	852	1390	1330	1490	2140	984	620	403	391
26	1560	1340	1660	819	1340	1250	1390	1900	961	611	416	375
27	1380	1760	1590	789	1300	1240	1710	1720	951	590	426	361
28	1320	3660	1390	746	1280	1170	2200	1650	955	587	432	363
29	1130	4330	1830	706	---	1090	1880	1730	956	552	440	357
30	1070	3700	2110	654	---	1320	1670	1690	912	571	440	350
31	1010	---	1650	632	---	1900	---	1390	---	644	435	---
TOTAL	24891	75560	47850	29225	28462	32647	49440	49990	49149	22191	15982	12574
MEAN	803	2519	1544	943	1017	1053	1648	1613	1638	716	516	419
MAX	1560	4570	2900	1380	1460	1900	2200	2140	4870	904	660	543
MIN	250	1340	1010	632	610	718	1180	1320	912	552	403	350
CFSM	2.83	8.87	5.44	3.32	3.58	3.71	5.80	5.68	5.77	2.52	1.82	1.48
IN.	3.26	9.90	6.27	3.83	3.73	4.28	6.48	6.55	6.44	2.91	2.09	1.65
AC-FT	49370	149900	94910	57970	56450	64760	98060	99160	97490	44020	31700	24940

CAL YR 1984 TOTAL 566463 MEAN 1548 MAX 9380 MIN 224 CFSM 5.45 IN. 74.20 AC-FT 1124000
WTR YR 1985 TOTAL 437961 MEAN 1200 MAX 4870 MIN 250 CFSM 4.23 IN. 57.37 AC-FT 868700

14241490 SOUTH FORK TOUTLE RIVER AT CAMP 12, NEAR TOUTLE, WA

LOCATION.--Lat 46°19'05", long 122°40'01", in NE¼SW¼ sec.35, T.10 N., R.1 E., Cowlitz County, Hydrologic Unit 17080005, on right bank 0.9 mi downstream from Johnson Creek, 1.2 mi southeast of Toutle, and at mile 3.4.

DRAINAGE AREA.--117 mi^2.

PERIOD OF RECORD.--February 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 510 ft from topographic map. Prior to Dec. 22, 1982, gage located 1.6 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 1-4, 16, 17, Dec. 25 to Jan. 1. Records good. No regulation or diversion upstream from station. Quality of water data on file in Washington office. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft^3/s Dec. 3, 1982, gage height, 16.60 ft, datum then in use, from floodmarks, from rating curve extended above 8,710 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 73 ft^3/s Aug. 27, 29, 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood occurred at about 1000 hours on May 18, 1980, from a mudflow caused by the eruption of Mount St. Helens. Another flood, on Dec. 26, 1980, reached a stage of 17.50 ft, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,860 ft^3/s Nov. 2, gage height, 14.37 ft; minimum daily, 73 ft^3/s Aug. 27, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	497	1420	520	247	442	976	628	370	166	218	77
2	93	2790	1240	504	241	404	990	718	388	159	145	77
3	92	2410	1060	493	217	371	983	821	339	152	114	75
4	104	1690	880	478	219	409	817	657	405	149	99	75
5	105	1170	575	460	217	397	719	564	366	148	96	91
6	95	971	528	450	217	369	749	507	454	145	88	189
7	91	960	509	453	253	340	870	476	2470	142	93	129
8	95	863	542	430	227	322	871	455	1490	138	165	103
9	141	842	510	403	221	314	872	423	949	133	125	106
10	356	1190	534	375	242	309	933	435	709	127	111	235
11	491	1380	477	350	577	302	1020	432	572	126	101	149
12	466	1700	525	334	620	306	934	381	494	123	93	158
13	582	1810	540	321	407	295	808	375	444	120	91	227
14	537	1460	744	335	412	293	777	428	407	119	85	245
15	430	1100	942	355	554	290	784	391	383	114	83	244
16	332	867	790	341	458	305	774	466	339	113	82	208
17	283	745	650	378	396	355	631	584	307	114	80	303
18	254	1090	484	393	355	371	565	585	287	111	78	273
19	231	1050	444	389	363	370	518	524	273	106	79	223
20	248	1050	414	412	380	393	466	451	258	102	80	190
21	218	869	413	393	377	422	416	407	241	101	81	169
22	197	733	555	371	517	420	435	406	228	101	81	155
23	188	1020	683	355	557	1030	721	416	218	100	77	141
24	192	985	701	335	640	1090	599	419	209	100	77	133
25	279	817	647	318	633	859	561	400	201	97	77	125
26	431	695	630	303	551	724	516	371	192	91	74	119
27	470	1430	610	288	490	675	597	344	184	86	73	113
28	521	2370	590	282	457	579	752	325	180	86	75	107
29	420	2000	575	269	---	516	686	368	175	85	73	104
30	374	1600	560	247	---	699	626	370	175	86	74	101
31	343	---	540	247	---	911	---	320	---	130	84	---
TOTAL	8754	38154	20312	11582	11045	14882	21966	14447	13707	3670	2952	4644
MEAN	282	1272	655	374	394	480	732	466	457	118	95.2	155
MAX	582	2790	1420	520	640	1090	1020	821	2470	166	218	303
MIN	91	497	413	247	217	290	416	320	175	85	73	75
CFSM	2.41	10.9	5.60	3.20	3.37	4.10	6.26	3.98	3.91	1.01	.81	1.32
IN.	2.78	12.13	6.46	3.68	3.51	4.73	6.98	4.59	4.36	1.17	.94	1.48
AC-FT	17360	75680	40290	22970	21910	29520	43570	28660	27190	7280	5860	9210

CAL YR 1984 TOTAL 231723 MEAN 633 MAX 3850 MIN 91 CFSM 5.41 IN. 73.68 AC-FT 459600
WTR YR 1985 TOTAL 166115 MEAN 455 MAX 2790 MIN 73 CFSM 3.89 IN. 52.82 AC-FT 329500

BEST COPY AVAILABLE

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA

LOCATION.--Lat 46°20'02", long 122°50'20", in NW¼SW¼ sec.20, T.10 N., R.1 W., Cowlitz County, Hydrologic Unit 17080005, on right bank 10 mi downstream from confluence of North and South Forks, 2.9 mi northwest of Silver Lake, and at mile 6.5.

DRAINAGE AREA.--496 mi^2, of which approximately 21 mi^2 is noncontributing. Prior to July 7, 1981, the noncontributing portion was approximately 40 mi^2.

PERIOD OF RECORD.--March 1981 to current year.

REVISED RECORDS.--WDR WA-83-1: 1983(M).

GAGE.--Water-stage recorder. Elevation of gage is 160 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 20, 21, Jan. 4-9, June 10, 25-27, July 5-12. Records fair. No regulation or diversion upstream from station. Some quality of water data available from Washington Office for this station. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft^3/s Dec. 3, 1982, gage height, 28.03 ft; minimum daily, 286 ft^3/s Sept. 15, 1981, Aug. 25, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on May 18, 1980, from mudflows caused by the eruption of Mount St. Helens. A flood about 1200 hours was due to mudflow from South Fork Toutle River and a larger flood about 2100 hours was due to mudflow from North Fork Toutle River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,690 ft^3/s June 7, gage height, 19.68 ft; maximum gage height, 19.90 ft Nov. 2; minimum daily, 367 ft^3/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	367	1860	3790	2600	1040	1830	3040	2340	1620	1100	999	501
2	375	6840	3000	2210	1020	1710	3050	2470	1570	1090	887	504
3	427	7320	2480	1980	921	1600	3190	2760	1390	1100	826	476
4	446	5500	2330	1870	912	1720	2910	2430	1530	1080	759	412
5	461	3800	2260	1800	1040	1630	2680	2230	1480	1010	688	451
6	451	3300	2070	1730	1030	1530	2650	2020	1520	996	643	726
7	465	3320	1870	1650	1240	1430	3030	1990	6720	982	640	591
8	489	2830	1950	1580	1200	1350	3140	2040	5820	982	730	493
9	580	2880	1870	1510	1220	1330	3160	2020	4130	1020	652	516
10	1060	3680	1910	1460	1320	1300	3280	2040	3280	982	644	867
11	1440	4270	1750	1400	2140	1260	3410	2020	2900	942	634	678
12	1470	5180	1920	1330	2580	1270	3080	1850	2660	942	601	491
13	1750	6500	1960	1290	1800	1230	2650	1800	2550	923	629	558
14	1710	5800	2270	1290	1750	1210	2640	1960	2310	867	628	635
15	1600	4020	2430	1330	2390	1200	2680	1790	2250	847	627	702
16	1440	2860	2060	1280	1980	1220	2700	1960	2040	853	616	671
17	1310	2610	1970	1350	1820	1330	2280	2360	1910	873	588	834
18	1220	3000	1770	1400	1710	1370	2100	2360	1760	866	559	854
19	1170	2820	1610	1370	1690	1350	2040	2210	1680	862	560	775
20	1150	2750	1540	1440	1760	1430	1920	2040	1610	821	559	718
21	1050	2570	1500	1400	1680	1680	1830	1860	1630	832	569	682
22	970	2470	2010	1330	2030	1720	1830	1960	1560	857	564	684
23	902	3220	2650	1300	2110	2600	2590	2070	1510	854	544	660
24	891	3060	2830	1270	2400	2630	2360	2230	1480	844	530	650
25	1100	2510	2530	1240	2330	2370	2360	2400	1430	783	507	626
26	1850	2220	2320	1190	2130	2200	2220	2210	1360	765	486	583
27	1830	3440	2570	1170	1990	2240	2530	2060	1260	732	506	560
28	2000	6260	2380	1120	1870	2070	3080	1970	1190	737	506	545
29	1760	5900	3180	1100	---	1980	2700	1970	1200	696	496	530
30	1800	5160	4110	1040	---	2310	2450	1930	1150	705	502	519
31	1740	---	3050	1030	---	2880	---	1630	---	785	524	---
TOTAL	35274	117950	71940	45060	47103	52980	79580	64980	64500	27728	19203	18492
MEAN	1138	3932	2321	1454	1682	1709	2653	2096	2150	894	619	616
MAX	2000	7320	4110	2600	2580	2880	3410	2760	6720	1100	999	867
MIN	367	1860	1500	1030	912	1200	1830	1630	1150	696	486	412
CFSM	2.29	7.93	4.68	2.93	3.39	3.45	5.35	4.23	4.33	1.80	1.25	1.24
IN.	2.65	8.85	5.40	3.38	3.53	3.97	5.97	4.87	4.84	2.08	1.44	1.39
AC-FT	69970	234000	142700	89380	93430	105100	157800	128900	127900	55000	38090	36680

CAL YR 1984 TOTAL 829265 MEAN 2266 MAX 12800 MIN 346 CFSM 4.57 IN. 62.19 AC-FT 1645000
WTR YR 1985 TOTAL 644790 MEAN 1767 MAX 7320 MIN 367 CFSM 3.56 IN. 48.36 AC-FT 1279000

BEST COPY AVAILABLE

14243000 COWLITZ RIVER AT CASTLE ROCK, WA

LOCATION.--Lat 46°16'30", long 122°54'48", in SW¼SE¼ sec.10, T.9 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, on left bank 40 ft downstream from Arkansas Valley Road bridge in Castle Rock, 2.7 mi downstream from Toutle River, and at mile 17.3.

DRAINAGE AREA.--2,238 mi^2, of which approximately 21 mi^2 is noncontributing. Prior to July 7, 1981, the noncontributing portion was approximately 40 mi^2.

PERIOD OF RECORD.--December 1926 to current year.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1638: 1947(P), 1951.

GAGE.--Water-stage recorder. Datum of gage is 20.20 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 18, 1933, nonrecording gage at site 2 mi upstream at datum 14.93 ft higher. Dec. 18, 1933, to June 13, 1934, nonrecording gage, and June 14 to Sept. 30, 1934, water-stage recorder, at present site at datum 5.0 ft higher. Oct. 1, 1934, to May 21, 1980, water-stage recorder, on right bank at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Riffe Lake (station 14234800) at mile 65.5, and Mayfield Reservoir (station 14237800) at mile 52.0. Minor diversions for domestic and farm use upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--58 years, 9,263 ft^3/s, 56.21 in/yr, 6,711,000 acre-ft/yr, adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 139,000 ft^3/s Dec. 23, 1933, gage height, 31.6 ft present datum, from rating curve extended above 80,000 ft^3/s; minimum, 998 ft^3/s Nov. 7, 8, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,600 ft^3/s Nov. 28, gage height, 17.29 ft; maximum gage height, 17.73 ft Dec. 30; minimum daily discharge, 3,170 ft^3/s Aug. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4250	7180	17600	13700	8210	7290	8110	5640	4620	8810	8150	3300
2	4250	13900	16300	12700	7370	7060	7840	5610	4780	9720	5560	3290
3	4380	15500	15200	12500	7180	6900	7830	5900	4660	9760	4470	3270
4	4430	14300	14200	12100	7030	7150	7450	5630	4590	9750	4280	3230
5	4480	12200	12800	11600	7100	6930	7020	5310	4590	9670	4190	3260
6	4450	10600	12400	10800	7100	6710	6890	4970	4730	9750	4140	3490
7	4450	12100	11900	12000	7710	6540	7120	4800	9750	10300	4100	3700
8	4490	12200	11000	10600	7670	6300	7190	4730	16600	10800	4240	3540
9	4640	12400	10800	9950	7750	6250	7180	4600	15500	11400	3980	3500
10	5020	14100	10800	9700	8340	6180	7270	4560	14200	10400	3750	3930
11	5520	15000	10100	9450	11600	6580	7650	4600	10500	10200	3700	3920
12	5380	14600	10900	8620	13400	6770	7460	4420	10700	9420	3610	3700
13	5780	14400	10800	7780	10300	6160	7040	4350	13200	10000	3400	3700
14	5810	14700	11300	8580	9260	6030	6800	4530	14400	8690	3320	3850
15	5540	14300	13000	8980	9730	5990	6750	4370	14000	9500	3280	3940
16	5540	13200	11700	8910	9210	5970	6770	4420	13300	10400	3260	3840
17	5740	12400	11800	9120	8680	6090	6420	4920	12400	9890	3220	4050
18	5620	12900	12300	8820	8260	6130	6170	5170	11800	9630	3170	4110
19	5550	12500	12200	8370	8230	6100	6100	5090	10200	10200	3170	3860
20	5630	12600	11700	7790	8540	5980	5930	4890	9970	10400	3180	3780
21	5590	13100	11600	8640	8300	6000	5720	4660	9390	9090	3210	3740
22	5510	12800	11500	8270	8730	6170	5710	4650	9010	9820	3210	3710
23	5530	13600	13000	7600	8850	7620	7010	4760	8630	10400	3190	3640
24	5800	13800	13000	7750	8890	8950	6930	4930	9000	10200	3190	3620
25	5700	13700	12400	7690	9100	8230	6910	5130	9120	9650	3180	3590
26	7210	13500	12200	7540	8370	7560	6220	5000	8140	10200	3190	3570
27	7540	17100	12800	7830	7630	7670	6050	4810	8080	10600	3240	3540
28	7720	22500	13200	8110	7420	7230	7090	4720	8340	10600	3280	3530
29	7180	20700	15200	10000	---	6740	6720	4790	8010	9540	3290	3530
30	6860	19400	18600	11100	---	7050	6090	4920	8130	10500	3310	3510
31	7160	---	15700	10700	---	8100	---	4640	---	10300	3360	---
TOTAL	172750	421280	398000	297300	239960	210430	205440	151520	290340	309590	115820	109240
MEAN	5573	14040	12840	9590	8570	6788	6848	4888	9678	9987	3736	3641
MAX	7720	22500	18600	13700	13400	8950	8110	5900	16600	11400	8150	4110
MIN	4250	7180	10100	7540	7030	5970	5710	4350	4590	8690	3170	3230
AC-FT	342600	835600	789400	589700	476000	417400	407500	300500	575900	614100	229700	216700
MEAN†	3604	13480	9536	5907	6700	6574	12280	11810	11910	3862	2464	2463
CFSM†	1.61	6.02	4.26	2.64	2.99	2.94	5.49	5.18	5.32	1.73	1.10	1.10
IN.†	1.86	6.72	4.91	3.04	3.12	3.39	6.12	6.09	5.94	1.99	1.27	1.23
AC-FT†	221600	802000	586400	363200	372100	404200	730500	726400	708800	237500	151500	146500

CAL YR 1984 TOTAL 3602020 MEAN 9842 MAX 31500 MIN 3080 AC-FT 7145000 MEAN† 9915 CFSM† 4.43 IN.† 60.32 AC-FT† 7198000
WTR YR 1985 TOTAL 2921670 MEAN 8005 MAX 22500 MIN 3170 AC-FT 5795000 MEAN† 7529 CFSM† 3.36 IN.† 45.68 AC-FT† 5451000

† Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

14244200 COWLITZ RIVER AT KELSO, WA
(National stream quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 46°08'44", long 122°54'47", near center of SE¼ sec.27, T.8 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, at Main Street bridge between Kelso and West Kelso, 3.6 mi upstream from Coweman River, and at mile 4.9.

DRAINAGE AREA.--2,349 mi².

PERIOD OF RECORD.--Water years 1960-1966, 1971-75, 1977 to current year. Additional data from April to August 1980 are published in U.S. Geological Survey Open-File Report 81-1007 and miscellaneous quality of water data are available from the Washington Office.

REMARKS.--Water discharges obtained by routing flows from upstream station (see sta 14243000). Station is tidally-influenced, and discharge values are poor.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT 18...	1100	5620	133	7.60	9.0	60	12.0	103	K16	78	38
DEC 20...	1000	11700	97	7.20	3.5	11	12.2	97	--	30	24
FEB 20...	1045	8540	112	7.30	5.0	40	13.0	100	25	210	33
APR 18...	1130	6170	119	7.20	9.5	70	11.4	99	K17	K9	37
JUN 14...	1100	14400	98	7.40	10.5	110	12.2	108	K34	310	31
AUG 01...	1015	8150	120	7.40	12.5	40	10.5	98	340	440	32

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 18...	12	11	2.6	11	38	.8	1.0	26	20	9.3	.10
DEC 20...	1	6.3	2.1	4.1	26	.4	.60	23	4.0	3.0	<.10
FEB 20...	8	9.7	2.1	9.4	38	.7	.80	25	20	7.1	<.10
APR 18...	13	11	2.3	8.9	34	.7	.90	24	21	7.0	<.10
JUN 14...	6	9.4	1.9	7.0	32	.6	.80	25	14	5.3	<.10
AUG 01...	7	9.7	1.9	9.9	39	.8	.90	25	18	7.8	<.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT 18...	14	88	85	.12	1280	<.10	<.010	<.20	.300	<.010	.010
DEC 20...	17	40	51	.05	1210	.22	.020	.20	.120	.010	<.010
FEB 20...	16	87	80	.12	2000	.25	.060	<.20	.120	.010	<.010
APR 18...	14	80	80	.11	1340	.17	.030	.30	.080	.010	<.010
JUN 14...	14	63	68	.09	2470	.13	.020	.20	.200	<.010	<.010
AUG 01...	13	72	76	.10	1430	<.10	.020	<.20	.070	<.010	.010

K - Results based on colony count outside the acceptable range (non-ideal colony count).

14244200 COWLITZ RIVER AT KELSO, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT											
18...	60	<1	11	2.0	1	<1	<3	1	45	<1	10
DEC											
20...	220	<1	12	<.5	<1	<1	<3	3	110	<1	<4
FEB											
20...	--	--	--	--	--	--	--	--	--	--	--
APR											
18...	50	<1	12	<.5	<1	<1	<3	3	67	<1	4
JUN											
14...	70	1	9	<.5	<1	<1	<3	3	72	4	6
AUG											
01...	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT											
18...	20	<.1	<10	<1	<1	<1	46	<6	14	533	8090
DEC											
20...	13	<.1	<10	<1	<1	<1	40	<6	5	566	17900
FEB											
20...	--	--	--	--	--	--	--	--	--	397	9150
APR											
18...	26	<.1	<10	3	<1	<1	48	<6	14	471	7850
JUN											
14...	16	<.1	<10	2	<1	<1	38	<6	4	1500	58300
AUG											
01...	--	--	--	--	--	--	--	--	--	491	10800

14245150 COWLITZ RIVER AT LONGVIEW, WA

LOCATION.--Lat 46°06'13", long 122°53'30", in NE¼SE¼ sec.11, T.7 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, near left bank on downstream side of railroad bridge, 0.3 mi downstream from Coweman River, 3.2 mi southeast of Longview City Hall, and at mile 1.0.

DRAINAGE AREA.--2,480 mi², at mouth, 1.0 mi downstream.

PERIOD OF RECORD.--May 1984 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is Columbia River Datum, 0.34 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 11.02 ft June 29, 1984; minimum, 2.12 ft Aug. 26, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 9.90 ft Nov. 10; minimum, 2.12 ft Aug. 26.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	5.60	4.66	4.92	6.53	5.38	5.75	9.13	7.91	8.40	6.72	5.50	5.99
2	5.65	4.68	4.87	8.46	5.95	7.15	8.87	7.75	8.17	6.86	5.38	5.90
3	5.87	4.68	5.03	8.95	7.20	7.91	8.80	7.59	8.04	7.44	5.70	6.29
4	5.86	4.77	5.14	8.40	6.78	7.53	8.70	7.31	7.89	7.40	5.29	6.18
5	6.02	4.82	5.19	7.73	6.20	6.87	8.51	6.93	7.62	7.75	5.26	6.16
6	5.99	4.80	5.13	8.53	6.25	7.04	8.27	6.61	7.27	7.91	5.14	6.19
7	5.98	4.80	5.18	8.40	6.48	7.19	8.59	6.67	7.34	8.34	5.09	6.39
8	6.38	4.81	5.34	8.64	6.54	7.27	8.72	6.69	7.40	8.50	5.33	6.61
9	6.61	4.91	5.50	8.45	6.60	7.27	8.53	6.63	7.23	8.31	5.40	6.54
10	7.20	4.95	5.77	9.90	6.66	7.95	9.03	6.61	7.50	7.89	5.35	6.38
11	7.28	5.36	6.01	9.54	7.49	8.35	8.76	6.75	7.50	7.16	5.36	6.13
12	7.76	5.35	6.12	9.57	7.50	8.32	8.84	6.84	7.78	7.08	5.37	6.00
13	7.54	5.37	6.14	9.39	7.64	8.38	8.20	7.08	7.54	7.02	5.20	5.79
14	6.92	5.53	5.90	8.45	7.57	7.93	8.34	6.93	7.60	7.21	5.12	5.87
15	6.36	5.36	5.65	8.24	7.17	7.60	8.38	7.14	7.57	7.50	5.46	6.07
16	6.30	5.31	5.55	8.36	7.16	7.77	8.27	6.74	7.24	7.35	5.37	6.00
17	5.84	5.32	5.46	8.31	7.21	7.66	8.08	6.55	7.01	7.76	5.44	6.18
18	5.56	5.22	5.31	9.06	7.29	7.94	8.34	6.49	7.10	8.08	5.46	6.38
19	5.87	5.13	5.29	8.87	7.28	7.85	8.41	6.38	7.01	8.14	5.30	6.41
20	6.06	5.17	5.43	9.36	7.19	7.89	8.49	6.25	6.97	8.34	5.31	6.49
21	6.18	5.10	5.43	9.19	7.17	7.84	8.95	6.29	7.21	7.89	5.34	6.30
22	6.71	5.06	5.59	9.30	7.10	7.81	8.99	6.39	7.30	7.99	5.57	6.39
23	7.00	5.02	5.67	9.49	7.06	7.86	8.77	6.41	7.30	7.93	5.40	6.46
24	7.33	5.09	5.80	9.83	7.33	8.14	8.07	6.21	6.88	7.41	5.43	6.29
25	7.47	5.14	5.90	9.24	7.21	7.90	7.67	5.91	6.49	6.98	5.46	6.12
26	8.35	5.37	6.48	8.41	7.11	7.58	7.59	5.71	6.39	6.88	5.35	5.90
27	8.37	5.90	6.68	9.13	6.89	7.89	7.53	5.81	6.67	6.61	5.15	5.59
28	7.83	5.90	6.54	9.30	7.60	8.56	7.37	6.11	6.61	6.64	5.14	5.61
29	7.01	5.81	6.15	8.93	7.87	8.40	7.53	6.11	6.85	6.75	5.46	5.82
30	6.53	5.58	5.89	9.24	7.93	8.51	8.03	6.60	7.16	6.31	5.00	5.55
31	6.06	5.53	5.71	---	---	---	7.33	6.10	6.58	6.27	4.81	5.29
MONTH	8.37	4.66	5.64	9.90	5.38	7.74	9.13	5.71	7.28	8.50	4.81	6.11

14245150 COWLITZ RIVER AT LONGVIEW, WA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.11	4.71	5.51	5.99	4.62	5.11	6.44	5.06	5.57	6.81	4.63	5.60
2	6.83	4.45	5.48	5.93	4.55	5.04	6.98	5.16	5.85	7.50	4.70	5.96
3	6.75	4.37	5.28	6.23	4.45	5.07	7.51	5.15	6.14	8.43	5.05	6.45
4	7.29	4.45	5.47	7.18	4.66	5.52	7.55	5.02	6.05	8.77	5.22	6.70
5	8.01	4.64	5.99	7.70	4.59	5.79	7.84	4.97	6.21	8.71	4.73	6.33
6	8.37	4.90	6.25	7.71	4.49	5.73	8.01	4.89	6.19	8.44	4.61	---
7	8.33	4.96	6.38	7.70	4.48	5.70	8.47	4.90	6.24	8.59	5.16	6.57
8	8.12	5.13	6.46	7.28	4.42	5.57	8.32	4.90	6.05	8.09	4.69	6.17
9	8.19	5.28	6.52	7.70	4.35	5.78	7.97	4.82	5.89	7.34	4.27	5.67
10	8.30	5.36	6.46	7.41	4.31	5.38	7.78	4.91	5.89	6.63	3.80	5.17
11	8.43	5.55	6.77	7.44	4.29	5.46	7.57	5.06	5.94	5.88	3.87	4.90
12	8.28	5.66	6.54	7.30	4.51	5.37	6.91	5.08	5.87	5.74	3.86	4.79
13	7.32	5.34	6.03	6.32	4.13	4.80	6.51	4.77	5.65	5.75	3.70	4.60
14	7.60	5.46	6.22	5.73	4.00	4.49	6.20	4.60	5.33	5.92	3.81	4.64
15	7.75	5.74	6.49	5.52	3.96	4.44	6.58	4.68	5.50	5.87	3.61	4.58
16	7.71	5.57	6.49	5.96	3.92	4.63	6.88	4.83	5.74	6.08	3.58	4.53
17	7.52	5.38	6.25	6.03	3.99	4.69	7.19	4.92	5.94	6.46	3.70	4.89
18	7.36	5.15	5.98	6.07	4.01	4.71	7.57	5.16	6.32	6.69	3.82	4.97
19	7.96	5.16	6.18	6.18	3.99	4.77	8.09	5.50	6.75	6.90	3.89	5.15
20	7.64	5.35	6.32	6.90	4.09	5.17	8.10	5.30	6.55	7.08	3.96	5.25
21	7.36	5.37	6.19	7.21	4.22	5.52	8.17	5.38	6.65	7.05	3.94	5.27
22	7.16	5.34	6.11	6.97	4.29	5.48	8.45	5.39	6.70	6.90	3.81	5.20
23	7.01	5.43	6.00	7.46	4.48	5.95	8.65	5.34	6.61	7.06	4.03	5.32
24	7.01	5.37	5.86	8.02	5.52	6.45	7.15	4.68	5.62	6.70	3.99	5.22
25	6.46	5.17	5.56	7.51	5.36	6.17	6.73	4.71	5.50	6.55	4.08	5.21
26	6.45	5.03	5.47	7.54	5.33	6.32	7.04	4.87	5.83	6.15	3.92	5.00
27	5.97	4.80	5.20	8.05	5.44	6.46	6.83	4.72	5.71	5.95	3.83	4.91
28	5.85	4.77	5.11	7.09	5.11	5.85	6.03	4.74	5.30	6.46	3.66	4.75
29	---	---	---	6.26	4.78	5.36	6.24	4.56	5.17	6.71	4.04	5.10
30	---	---	---	6.08	4.94	5.36	6.25	4.37	5.29	7.06	4.32	5.39
31	---	---	---	6.27	5.11	5.63	---	---	---	7.81	4.49	5.95
MONTH	8.43	4.37	6.02	8.05	3.92	5.41	8.65	4.37	5.94	8.77	3.58	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.69	4.75	6.26	---	4.66	---	6.80	3.97	5.09	5.44	2.23	3.67
2	8.86	4.82	6.45	7.40	5.04	5.78	6.42	3.33	4.49	5.39	2.26	3.63
3	9.05	4.81	6.59	7.72	5.13	6.03	6.04	2.89	4.15	5.19	2.23	3.48
4	9.54	5.28	6.99	7.75	5.17	6.01	5.78	2.73	3.95	5.04	2.20	3.33
5	8.98	4.73	6.48	7.22	5.04	5.74	5.10	2.64	3.66	5.19	2.26	3.34
6	8.01	4.18	5.88	6.68	4.90	5.52	5.03	2.63	3.57	5.32	2.47	3.56
7	8.09	5.09	6.53	6.38	4.99	5.50	5.16	2.65	3.56	4.73	2.56	3.39
8	8.21	6.33	7.22	5.95	4.88	5.30	4.72	2.75	3.44	4.62	2.36	3.16
9	7.55	6.05	6.89	5.78	4.63	5.11	4.52	2.58	3.13	5.17	2.27	3.26
10	7.43	5.85	6.67	5.74	4.52	4.87	4.33	2.47	2.97	5.43	2.48	3.64
11	7.50	5.96	6.48	5.80	4.52	4.89	4.57	2.41	2.98	5.68	2.60	3.78
12	7.52	6.04	6.49	5.79	4.45	4.80	4.63	2.37	3.14	5.96	2.47	4.02
13	7.39	6.02	6.43	5.82	4.64	4.95	5.03	2.30	3.25	6.46	2.71	4.38
14	7.34	5.83	6.36	5.90	4.43	4.82	5.46	2.27	3.61	6.69	2.80	4.50
15	7.33	5.54	6.11	5.74	4.31	4.85	6.24	2.36	4.00	6.54	2.77	4.44
16	7.10	5.41	5.98	6.22	4.72	5.14	6.51	2.42	4.10	6.78	2.78	4.57
17	7.10	5.37	---	6.27	4.55	5.06	6.34	2.42	4.12	7.01	2.97	4.74
18	---	---	---	6.35	4.45	5.04	6.15	2.30	3.94	6.94	3.04	4.61
19	---	---	---	6.67	4.70	5.31	5.56	2.23	3.71	6.60	2.99	4.39
20	---	---	---	6.87	4.83	5.46	5.67	2.27	3.74	5.99	2.80	3.95
21	---	---	---	6.65	4.62	5.24	5.47	2.22	3.56	5.42	2.67	3.72
22	---	---	---	6.21	4.45	5.12	5.31	2.21	3.34	5.03	2.48	3.39
23	---	---	---	5.96	4.73	5.15	5.34	2.24	3.25	5.12	2.40	3.30
24	---	---	---	5.87	4.61	5.01	5.23	2.23	3.30	5.14	2.40	3.43
25	---	---	---	5.94	4.34	4.84	5.23	2.16	3.20	5.40	2.45	3.70
26	---	---	---	5.98	4.45	4.81	5.23	2.12	3.27	5.91	2.65	4.14
27	---	---	---	6.02	4.47	4.87	5.56	2.19	3.50	6.16	2.68	4.24
28	---	---	---	6.09	4.32	4.88	5.71	2.18	3.61	5.98	2.57	4.01
29	---	---	---	6.51	4.25	4.98	5.93	2.26	3.85	5.70	2.46	3.85
30	---	---	---	6.86	4.56	5.25	5.93	2.22	3.77	5.83	2.49	3.87
31	---	---	---	6.69	4.47	5.19	5.59	2.23	3.63	---	---	---
MONTH	---	---	---	---	4.25	---	6.80	2.12	3.64	7.01	2.20	3.85

14245300 COLUMBIA RIVER AT LONGVIEW, WA

LOCATION.--Lat 46°06'22", long 122°57'14", in SE¼NE¼ sec.8, T.7 N., R.2 W., Cowlitz County, Hydrologic Unit 17080003, on right bank, at the Port of Longview, 2,000 ft upstream from Longview Bridge, 2.1 mi downstream from Cowlitz River and at mile 66.2.

DRAINAGE AREA.--256,700 mi², approximately.

PERIOD OF RECORD.--November 1983 to current year (gage heights only). Gage-height records collected at site on opposite bank, at same datum, published as "at Rainier" (station 14245295) November 1971 to May 1981.

GAGE.--Water-stage recorder. Datum of gage is Columbia River Datum, 0.34 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 16.52 ft Jan. 19, 1974; minimum gage height, 0.46 ft July 6, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 9.35 ft Nov. 10; minimum gage height not recorded because of equipment failure.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	5.23	1.34	3.19	5.87	1.68	3.82	7.83	5.53	6.53	---	---	---
2	5.26	---	2.98	7.62	2.96	5.55	7.53	5.27	6.18	---	2.84	---
3	5.58	1.56	3.57	8.26	4.95	6.40	7.45	4.91	5.95	6.56	3.05	4.55
4	5.60	1.66	3.71	7.55	4.41	5.87	7.41	4.36	5.71	6.79	2.74	4.59
5	5.72	1.85	3.71	7.07	3.68	5.18	7.35	3.36	5.34	7.32	2.87	4.82
6	5.70	1.29	3.40	8.14	3.94	5.68	7.39	3.33	5.11	7.51	2.53	4.92
7	5.71	1.27	3.53	7.78	3.71	5.58	7.81	3.57	5.44	7.98	2.57	5.17
8	6.24	1.60	3.93	8.08	3.70	5.71	8.08	3.26	5.62	8.12	3.19	5.49
9	6.47	1.93	4.13	7.83	3.72	5.64	7.90	3.26	5.30	7.94	3.24	5.45
10	7.07	2.29	4.59	9.35	3.71	6.48	8.41	3.23	5.78	7.43	3.25	5.20
11	7.12	2.51	4.64	8.67	4.87	6.68	8.09	3.75	5.82	6.47	3.05	4.74
12	7.66	2.47	4.90	8.69	4.61	6.56	8.02	3.83	6.14	6.41	2.76	4.55
13	7.35	3.01	4.98	8.36	4.63	6.57	7.05	3.94	5.52	6.50	2.59	4.32
14	6.58	2.24	4.18	7.21	4.60	5.89	7.25	3.46	5.61	6.77	2.60	4.35
15	5.92	2.04	3.79	6.92	3.95	5.55	7.30	3.79	5.41	6.99	2.89	4.37
16	5.83	1.62	3.62	7.05	4.11	5.80	7.25	3.37	5.01	6.84	2.67	4.37
17	5.00	1.63	3.29	7.06	4.21	5.62	7.24	3.17	4.76	7.35	2.87	4.67
18	4.40	---	---	8.25	4.38	6.03	---	3.36	---	7.74	3.06	5.07
19	5.13	---	---	7.99	4.04	5.74	---	3.17	---	7.81	3.09	5.16
20	5.46	1.36	3.37	8.73	4.08	5.91	---	3.26	---	8.05	3.03	5.41
21	5.68	1.22	3.33	8.48	3.95	5.85	---	---	---	7.50	3.03	---
22	6.45	1.72	3.93	8.68	3.46	5.83	---	---	---	7.62	---	---
23	6.84	2.01	4.21	8.86	3.56	5.82	---	---	---	7.59	3.81	---
24	7.20	2.13	4.36	9.24	3.85	6.30	---	---	---	6.92	3.43	5.14
25	7.38	2.11	4.50	8.50	3.95	6.03	---	---	---	6.33	3.16	4.81
26	8.20	2.11	5.14	7.50	3.79	5.52	---	---	---	6.18	3.21	4.48
27	8.17	3.17	5.35	8.22	3.31	5.99	---	---	---	5.95	2.54	3.90
28	7.51	3.10	5.04	8.07	4.52	6.69	---	---	---	5.98	2.41	3.87
29	6.47	2.42	4.29	7.62	5.16	6.47	---	---	---	5.88	2.71	3.86
30	5.84	1.81	3.92	7.92	5.13	6.59	---	---	---	5.39	2.07	3.45
31	4.96	1.80	3.53	---	---	---	---	---	---	5.54	1.95	---
MONTH	8.20	---	---	9.35	1.68	5.91	---	---	---	---	---	---

BEST COPY AVAILABLE

14245300 COLUMBIA RIVER AT LONGVIEW, WA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	5.36	2.24	3.67	---	2.18	---	6.45	3.49	---
2	6.45	2.24	4.37	5.26	2.22	3.62	---	3.06	---	---	3.65	5.28
3	6.45	2.03	4.11	---	2.02	---	6.95	3.09	---	---	4.10	---
4	7.06	2.58	4.40	6.62	2.68	---	---	3.26	---	---	4.32	---
5	7.79	2.86	5.11	---	2.81	---	6.98	3.57	5.31	---	3.71	---
6	8.17	3.30	5.44	---	2.52	---	7.76	3.31	---	---	4.07	---
7	8.15	3.33	5.53	---	2.64	---	---	3.27	---	---	4.75	---
8	7.84	3.28	5.57	---	2.60	---	---	3.04	---	---	4.23	---
9	7.91	3.55	5.62	6.88	2.73	---	---	2.92	---	---	3.71	---
10	7.99	3.61	5.44	---	2.32	---	---	3.04	---	6.66	3.29	4.97
11	8.05	3.50	5.58	---	2.46	---	---	3.40	---	5.90	3.20	---
12	7.76	3.73	5.24	---	2.61	---	---	3.59	---	---	3.20	---
13	6.69	3.26	4.70	---	---	---	---	3.15	---	---	3.00	---
14	7.07	3.51	5.02	---	1.15	---	---	2.60	---	---	3.08	---
15	7.13	3.78	5.28	---	1.30	---	---	3.12	---	---	3.04	---
16	7.15	3.41	5.27	---	1.42	---	---	3.55	---	---	2.79	---
17	7.00	2.94	4.96	---	1.40	---	---	3.84	---	---	2.99	---
18	6.88	2.69	4.61	---	1.45	---	---	4.19	---	6.70	2.84	---
19	7.65	2.81	5.04	---	1.73	---	---	4.76	---	6.72	3.09	4.88
20	7.19	3.30	5.21	---	2.59	---	---	4.43	---	6.72	3.28	5.02
21	6.90	3.32	---	---	2.84	---	---	4.50	---	6.71	3.31	5.04
22	6.61	3.23	---	---	2.89	---	---	4.53	---	6.71	3.17	5.01
23	6.36	---	---	---	3.09	---	---	4.26	---	---	3.42	---
24	6.39	2.83	---	---	3.83	---	---	2.79	---	6.66	3.32	5.02
25	5.63	2.31	3.65	---	3.53	---	---	2.99	---	6.63	3.43	5.01
26	5.66	2.57	3.78	---	3.98	---	---	3.75	---	6.23	3.30	4.82
27	5.14	2.34	3.50	---	---	---	---	3.42	---	6.07	3.22	4.70
28	5.10	2.38	3.55	6.65	3.39	4.82	---	2.40	---	6.62	2.96	4.45
29	---	---	---	5.69	2.57	4.13	4.94	2.69	3.97	6.72	3.57	4.96
30	---	---	---	---	2.44	---	5.64	2.86	---	---	3.88	5.21
31	---	---	---	---	2.09	3.73	---	---	---	---	4.11	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	3.96	---	6.72	1.38	3.79	6.30	1.04	3.49	5.33	---	3.03
2	---	3.95	---	6.76	1.51	4.06	6.16	1.04	3.46	5.25	---	2.98
3	---	3.98	---	---	2.30	4.58	5.87	1.04	3.35	4.85	---	2.82
4	---	4.51	---	6.76	2.18	4.49	5.62	1.04	3.18	4.84	---	2.66
5	8.73	3.78	5.96	6.66	1.57	3.97	4.85	---	2.83	4.85	1.04	2.69
6	---	3.13	---	6.02	1.27	3.59	4.81	---	2.74	---	1.33	2.97
7	---	3.94	---	5.43	1.17	3.35	4.97	1.04	2.76	4.52	1.23	2.70
8	---	4.44	---	4.96	1.04	3.02	4.48	1.18	2.56	4.43	---	---
9	6.55	3.90	5.40	4.80	---	2.71	4.22	---	---	5.00	---	---
10	6.55	3.87	5.14	4.82	---	2.56	4.06	---	---	4.85	---	2.89
11	6.70	3.75	4.96	4.87	1.23	2.55	4.41	---	---	---	---	2.99
12	6.70	3.70	4.88	4.91	1.04	2.52	4.56	---	---	5.83	1.04	3.35
13	6.49	3.18	4.38	4.87	---	2.43	4.82	---	---	---	1.41	---
14	---	2.78	---	4.97	---	---	5.32	---	---	---	1.55	---
15	6.54	2.43	---	5.14	---	2.77	6.12	1.04	3.37	6.18	1.34	---
16	---	2.03	---	5.48	---	2.97	6.37	1.06	3.52	6.66	1.47	---
17	---	2.13	---	5.57	---	2.97	6.25	1.07	3.56	6.77	1.86	---
18	---	1.91	---	5.85	---	---	6.04	1.04	3.31	5.86	1.82	---
19	6.73	2.62	4.66	6.17	1.08	3.53	---	---	---	---	1.89	---
20	---	2.68	---	6.30	1.19	---	5.55	---	3.09	---	1.37	---
21	---	2.10	---	6.09	1.08	3.49	---	---	---	4.85	1.18	2.99
22	6.42	2.08	4.14	5.52	1.04	3.26	5.19	---	2.63	4.83	---	2.59
23	---	1.58	---	5.14	---	2.90	---	---	---	4.83	---	---
24	5.32	1.13	3.27	5.04	---	2.70	5.12	---	---	4.84	---	---
25	5.33	1.04	3.12	5.35	---	2.58	5.13	---	---	4.85	---	2.94
26	5.67	1.14	2.93	5.25	---	2.50	5.11	---	---	---	1.32	---
27	---	1.33	---	5.50	---	---	---	---	---	---	1.42	---
28	6.08	1.51	3.26	5.53	---	---	5.60	---	2.95	---	1.18	---
29	6.39	1.54	3.56	5.94	---	3.18	5.82	---	3.23	5.58	1.04	3.14
30	6.63	1.39	3.67	6.46	---	3.39	5.83	---	3.15	5.70	1.06	3.17
31	---	---	---	6.20	1.04	3.33	---	---	---	---	---	---
MONTH	---	1.04	---	---	---	---	---			---	---	---

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1985

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum		
					Date	Gage height (ft)	Discharge (ft³/s)
		Quillayute River basin					
12042900	Grader Creek near Forks, WA	Lat 47°55'40", long 124°24'25", in SW1/4 sec.17, T.28 N., R.13 W., Clallam County, at U.S. Highway 101, 2 mi southwest of Forks.	1.67	1950-85	12-14-84	21.61	397
		McAllister Creek basin					
12081300	Eaton Creek near Yelm, WA	Lat 46°58'05", long 122°43'30", in S1/2 sec.7, T.17 N., R.1 E., Thurston County, at county road, 6 mi northwest of Yelm.	2.28	1960-85	11- 4-84	5.45	40
		Lake Washington basin					
12115300	Green Point Creek near Cedar Falls, WA	Lat 47°23'20", long 121°40'30", in SE1/4 sec.17, T.22 N., R.9 E., King County, at road crossing near mouth, 5 mi southeast of Cedar Falls.	.89	1957-85	6- 7-85	11.02	41
		Skagit River basin					
12189400	Sauk River tributary near Darrington, WA	Lat 48°20'30", long 121°33'00", in SE1/4 sec.18, T.33 N., R.10 E., Skagit County, at old country road, 6.5 mi northeast of Darrington.	1.30	1951-70, 1978-85	11- 3-84	73.22	a49
		Nooksack River basin					
12204400	Nooksack River tributary near Glacier, WA	Lat 48°54'30", long 121°48'20", in SW1/4 sec.32, (unsurveyed), T.40 N., R.8 E., Whatcom County, at State Highway 542, 6.5 mi east of Glacier.	1.15	1956-60, 1962-85	10-10-84	15.74	40
12212800	Tenmile Creek tributary no. 2 near Bellingham, WA	Lat 48°50'35", long 122°24'30", 0.2 mi north from center of sec.27, T.39 N., R.3 E., Whatcom County, at Starry Road, 2.8 mi northwest of Noon, and 7 mi northeast of Bellingham.	.24	1956-85	6- 7-85	6.54	19
		Pend Oreille River basin					
12396000	Calispell Creek near Dalkena, WA	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, 2.4 mi upstream from Calispell Lake, and 4.8 mi west of Dalkena.	68.3	1950-73†, 1974-85	4-17-85	7.14	402
12396100	Winchester Creek near Cusick, WA	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, at county road around Calispell Lake, and 4.8 mi southwest of Cusick.	16.8	1954-85	4- 7-85	10.71	90
		Methow River basin					
12447380	Pine Creek near Mazama, WA	Lat 48°34'48", long 120°37'33", in NE¼ sec.32, T.36 N., R.18 E., Okanogan County, at State Highway 20, 10 mi west of Mazama.	4.63	1966-85	5-22-85	19.38	108
		Wenatchee River basin					
12461200	East Branch Mission Creek tributary near Cashmere, WA	Lat 47°22'50", long 120°29'20", in SW¼ sec.20, T.22 N., R.19 E., Chelan County, at U.S. Forest Service road, 9.7 mi south of Cashmere.	2.49	1955-85	4-14-85	10.33	1.2

† Operated as a continuous-record gaging station.
a Discharge for peak of June 6, 7, 1985 probably was higher.

Crest-stage partial-record stations--Continued

Annual maximum discharge at crest-stage partial-record stations during water year 1985

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (ft³/s)
		Yakima River basin					
12491700	Hause Creek near Rimrock, WA	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi west of Tieton Ranger Station, and 2.5 mi east of Rimrock.	3.91	1955-85	4-13-85	5.73	10
		Palouse River basin					
13349300	Palouse River tributary at Colfax, WA	Lat 46°53'22", long 117°22'59", in SE¼SW¼ sec.10, T.16 N., R.43 E., Whitman County, at U.S. Highway 295, about 1 mi west of Colfax.	2.10	1955-85	2-25-85	17.95	38
		Klickitat River basin					
14112200	Little Klickitat River tributary near Goldendale, WA	Lat 45°50'15", long 120°47'50", in NW¼ sec.15, T.4 N., R.16 E., Klickitat County, at county at county road, 1.5 mi northeast of Goldendale.	.71	1960-85	12-23-84	8.17	7.3
		Cowlitz River basin					
14226900	Skate Creek tributary no. 2 near Packwood, WA	Lat 46°40'30", long 121°45'10", in NE1/4 sec.26, T.14 N., R.8 E., Lewis County, at Skate Creek Road, 6 mi northwest of Packwood.	1.82	1959-75, 1978-85	6- 7-85	10.48	81

Discharge measurements made at miscellaneous sites during water year 1985

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Willapa River basin				
12011500 Willapa River	Willapa Bay	Lat 46°33'50", long 123°33'49", in SW¼SW¼ sec.33, T.13 N., R.7 W., Pacific County, 0.2 mi downstream from bridge on State Highway 6, 0.5 mi west of Lebam, and at mile 33.9.	41.4	1948-71†, a1972-74, 1978-84	10-30-84 1-25-85 4- 2-85 6- 4-85 8- 8-85	125 50.4 274 46.8 14.0
		Chehalis River basin				
12020565 Chehalis River	Grays Harbor	Lat 46°37'54", long 123°14'51", in NW¼NE¼ sec.12, T.13 N., R.5 W., Lewis County, at Chandler Road bridge, 1.0 mi west of Rainbow Falls State Park bridge, 1.3 mi east of Doty, and at mile 97.8.	---	1978-84	6- 4-85 8- 8-85	230 114
12022250 Chehalis River	.....do......	Lat 46°37'40", long 123°03'35", in SW¼NE¼ sec.9, T.13 N., R.3 W., Lewis County, at State Highway 6 bridge at Adna, and at mile 81.3.	383	1972, 1975-84	7- 2-85 8-12-85	173 90.0
12024100 South Fork Newaukum River	Newaukum River	Lat 46°36'14", long 122°51'15", in NW¼NE¼ sec.19, T.13 N., R.1 W., Lewis County, at county bridge 0.3 mi northeast of Forest, 0.2 mi upstream from North Fork Newaukum River, and at mile 11.1.	66.2	1976-84	7- 2-85 8-12-85	48.8 31.7
12024500 North Fork Newaukum River	.....do.....	Lat 46°39'17", long 122°46'45", in NW¼SW¼ sec.35, T.14 N., R.1 W., Lewis County, at county road 1.4 mi upstream from Lucas Creek, 5.5 mi northeast of Forest, and at mile 6.6.	31.5	1942-43, 1944-45†, 1957-66†, 1967, 1976-84	7- 2-85 8-12-85	18.7 9.43
12029500 Garrard Creek	Chehalis River	Lat 46°48'34", long 123°16'15", in SW¼SE¼ sec. 2, T.15 N., R.5 W., Grays Harbor County, at county road 2.8 mi southwest of Oakville, and at mile 2.6.	26.5	1942-43, 1944-45†, 1958,1961, 1976-84	7- 2-85 8-13-85	11.0 3.29
12032500 Cloquallum Creek	.....do.....	Lat 47°00'17", long 123°23'11", in SW¼NW¼ sec.36, T.18 N., R.6 W., Grays Harbor County, 10 ft downstream from State Highway 12 bridge, 1.7 mi east of Elma, 1.9 mi downstream from Wildcat Creek, and at mile 1.9.	64.9	1942-43†, 1944-72†, a1973-79, 1974-84	7- 3-85 8-13-85	48.1 29.0
12038005 Wishkah River	.....do.....	Lat 47°04'20", long 123°46'09", in NE¼SW¼ sec.2, T.18 N., R.9 W., Grays Harbor County, at Wishkah Road, 0.1 mi upstream from East Fork, 1.0 mi north of Aberdeen Gardens, and at mile 12.3.	59.9	1956, 1962-64, 1966, 1976-84	7- 3-85 8-13-85	69.2 41.8
		Hoquiam River basin				
12038660 East Fork Hoquiam River	Hoquiam River	Lat 47°03'32", long 123°50'04", in NW¼SW¼ sec.8, T.18 N., R.9 W., Grays Harbor County, 0.2 mi upstream from Berryman Creek, 3.0 mi west of Aberdeen Gardens, and at mile 7.3.	25.8	1942-43, 1976-84	7- 3-85 8-13-85	28.7 19.8
		Humptulips River basin				
12039000 Humptulips River	Grays Harbor	Lat 47°13'42", long 123°56'23", in NE¼NE¼ sec.17, T.20 N., R.10 W., Grays Harbor County, on right bank, 1.0 mi southeast of Humptulips, 2.3 mi upstream from Stevens Creek, 3.3 mi downstream from confluence of East and West Forks, and at mile 24.8.	130	1933-35†, 1942, 1942-79†, 1980-82, 1984	11-20-84 1-28-85 3-14-85 5-30-85 8- 5-85	2,940 422 547 411 140
		Hamma Hamma River basin				
12054500 Hamma Hamma River	Hood Canal	Lat 47°35'18", long 123°06'57", in SE¼NW¼ sec.7, T.24 N., R.3 W., Mason County, Olympic National Forest, 0.3 mi downstream from Watson Creek, 4.6 mi northwest of Eldon, and at mile 6.2.	51.3	1952-71†, a1972-79, 1977, 1981-84	8-14-85	74.1
		Skokomish River basin				
12062500 Purdy Creek	Skokomish River	Lat 47°17'56", long 123°10'50", in NW¼NW¼ sec.22, T.21 N., R.4 W., Mason County, 0.2 mi upstream from State Fish Hatchery, 5.5 mi southwest of Union, and at mile 1.4.	---	1954-60†, 1981-84	6-27-85 8-14-85	17.6 13.2

† Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1985--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Deschutes River basin				
12079004 Deschutes River	Budd Inlet	Lat 46°52'23", long 122°43'44", in SE¼NW¼ sec.18, T.16 N., R.1 E., Thurston County, at State Highway 507, 2.2 mi southwest of Rainier, and at mile 21.6.	101	1980-84	11-21-84	461
					2- 4-85	79.7
					4-10-85	232
					6-24-85	70.1
					8-28-85	35.5
12080010 Deschutes River	.....do.....	Lat 47°00'42", long 122°54'07", in NW¼ Land Grant 60, T.18 N., R.2 W., Thurston County, at "E" Avenue Bridge in Tumwater, 0.2 mi upstream from Capitol Boulevard, and at mile 2.4.	162	1971-72,	11-21-84	643
				1975,	2- 5-85	194
				1977-84	4-10-85	346
					6-24-85	145
					8-28-85	80.8
		Chambers Creek basin				
12091500 Chambers Creek	Puget Sound	Lat 47°11'55", long 122°31'45", in NE¼NE¼ sec.27, T.20 N., R.2 E., Pierce County, 300 ft downstream from Leach Creek, 1.5 mi downstream from outlet of Steilacoom Lake, and 4.0 mi northeast of Steilacoom.	104	1938-40†,	10-15-84	65.7
				1941,	12-12-84	153
				1943-65†,	2-13-85	115
				1966,	4-16-85	91.3
				1972,1973	8-21-85	27.5
				1975,1976,	9-11-85	31.6
				1984		
		Puyallup River basin				
12093900 Carbon River	Puyallup River	Lat 47°00'47", long 122°00'42", in SW¼SW¼ sec.26, T.18 N., R.6 E., Pierce County, at Fairfax, 0.7 mi downstream from Evans Creek, and at mile 17.7.	76.2	1906,	10-18-84	121
				1911-12†,	12-12-84	221
				1966-78†,	4-11-85	696
				1979-84	5-30-85	963
					7-30-85	362
12096500 Puyallup River	Commencement Bay	Lat 47°11'07", long 122°13'42", on line between sec.25, T.20 N., R.4 E., and sec.30, T.20 N., R.5 E., Pierce County, at State Highway 162, 1.0 mi north of Alderton, 1.0 mi south of Sumner, and at mile 12.2.	438	1914,	5-29-85	1,980
				1915-27†,	8- 8-85	1,190
				1944-57,		
				1982-84		
12101110 White River	Puyallup River	Lat 47°12'15", long 122°14'10", in NW¼SW¼ sec.24, T.20 N., R.4 E., Pierce County, at Main Street bridge on northwest edge of Sumner, and at mile 0.7.	494	1972,	10-26-84	1,590
				1977-84	12-18-84	1,130
					2-19-85	1,430
					4-15-85	2,300
					5-29-85	2,730
					8- 8-85	1,610
		Duwamish River basin				
Mill Creek	Black River	Lat 47°25'16", long 122°14'54", NE¼SE¼ sec.2, T.22 N., R.4 E., King County, at State Highway 181 bridge, at Kent.	---	----	3-19-85	5.24
					5-28-85	2.59
					8- 2-85	1.76
.....do.....	.....do.....	Lat 47°26'26", long 122°14'26", in SE¼NW¼ sec.36, T.23 N., R.4 E., King County, 15 ft upstream from railroad crossing, at Orillia.	---	----	3-19-85	4.50
					5-28-85	3.12
					8- 2-85	2.59
		Lake Washington Basin				
12126500 Sammamish River	Lake Washington	Lat 47°45'20", long 122°11'35", in NW¼SE¼ sec.8, T.26 N., R.5 E., on left bank in Bothell, a quarter of a mile downstream from North Creek, and 3.5 mi upstream from mouth.	212	1940-63†,	4-28-82	c404
				1964	6-22-82	c116
					9-10-82	c239
					12- 8-82	c866
					2- 3-83	c534
					3-31-83	c575
					5-13-83	c224
					7-15-83	c199
					11- 4-83	c534
					1-31-84	c738
					6- 4-84	c384
					8-15-84	c101
					10-11-84	217
					3-21-85	296
					6- 3-85	221
					7- 1-85	140
					8- 5-85	91.4

† Operated as a continuous-record gaging station.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1985--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Snohomish River basin				
Tye River	South Fork Skykomish River	Lat 47°42'38", long 121°09'22", in SW¼SW¼ sec.29, T.26 N., R.13 E., King County, Snoqualmie National Forest, at road bridge, 0.2 mi upstream from Suprise Creek at Scenic, and at mile 77.3.	---	1983-84	10-15-84 11-16-84 12-15-84 1-15-85 2-15-85 3-15-85 4-15-85 5-15-85 6-14-85 7-15-85 8-14-85 9-16-85	40.2 46.9 38.3 26.6 24.0 29.0 333 119 284 47.3 19.5 21.2
12131500 West Fork Miller River	.....do.....	Lat 47°40'17", long 121°23'28", in NE¼NE¼ sec.16, T.25 N., R.11 E., King County, Snoqualmie National Forest, at road bridge 0.3 mi upstream from East Fork Miller River, and 3.3 mi southwest of Skykomish.	13.8	1911†, 1983-84	10-15-84 11-16-84 12-15-84 1-15-85 2-15-85 3-15-85 5-15-85 7-15-85 8-14-85 9-16-85	87.3 62.3 110 42.8 45.5 34.4 114 71.2 8.40 24.0
12141100 Skykomish River	Snohomish River	Lat 47°51'08", long 121°57'29", in NE¼NE¼ sec.12, T.27 N., R.6 E., Snohomish County, at State Highway 203 bridge, at south city limits of Monroe.	834	1922, 1951, 1955, 1958-67, 1959, 1967-84	10-26-84 2-25-85 4-29-85 6-25-85 8-20-85	7,180 5,890 9,620 5,040 1,060
12143100 North Fork Snoqualmie River	Snoqualmie River	Lat 47°31'19", long 121°46'07", in SE¼NW¼ sec.34, T.24 N., R.8 E., King County, at highway bridge 2 mi northeast of North Bend, and 0.3 mi upstream from confluence with Middle Fork Snoqualmie River.	103	1907, 1908-26†, 1929-38†, 1939, 1981-84	6-21-85 9-17-85	726 636
12145000 Tokul Creek	.....do.....	Lat 47°33'13", long 121°50'09", in SW¼NW¼ sec.19, T.24 N., R.8 E., King County, 200 ft upstream from fish hatchery diversion, 600 ft downstream from State Highway 522, and 1.8 mi northeast of Snoqualmie.	32.2	1907-14†, 1926,1927, 1929-31†, 1945,1957, a1959-61, 1962-84	10-25-84 2-11-85 6- 3-85	28.0 73.5 76.0
12150700 Snoqualmie River	Snohomish River	Lat 47°48'14", long 122°00'07", in NE¼NW¼ sec.26, T.27 N., R.6 E., Snohomish County, at county bridge 4.5 mi southeast of Monroe, 4.5 mi north of Duvall, and 1.5 mi upstream from confluence with Skykomish River.	688	1981-84	6-24-85 8-20-85	3,190 726
12155400 Pilchuck River	.....do.....	Lat 47°54'47", long 122°04'56", in NW¼SE¼ sec.18, T.28 N., R.6 E., Snohomish County, at bridge on U.S. Highway 2 at east city limits of Snohomish, and at mile 1.9.	132	1971-74, 1978-84	10-25-84 12-18-84 2-20-85 4-24-85 6-21-85 8-15-85	120 797 552 702 249 66.2
		Stillaguamish River basin				
12164200 Jim Creek	South Fork Stillaguamish River	Lat 48°11'02", long 122°04'30", in NE¼SE¼ sec.7, T.31 N., R.6 E., Snohomish County, at Jordan Road bridge 2.3 mi southeast of Arlington, and 300 ft upstream from confluence with mouth.	46.8	1981-84	7-17-85 8-23-85	19.4 9.45
12164510 South Fork Stillaguamish River	Stillaguamish River	Lat 48°12'03", long 122°07'04", in NE¼SE¼ sec.2, T.31 N., R.5 E., Snohomish County, at State Highway 530 bridge near northeast corner of Arlington, 0.4 mi upstream from the confluence with the North Fork Stillaguamish River, and at mile 18.2.	255	1966, 1973-75, 1978-84	11-26-84 1- 7-85 3-18-85 5-20-85 7-22-85 9-23-85	1,700 1.030 880 2,500 425 430
12167700 Stillaguamish River	Port Susan	Lat 48°11'48", long 122°12'33", in SW¼SE¼ sec.6, T.31 N., R.5 E., Snohomish County, at Interstate 5, 1.5 mi east of Silvana, 6.7 mi downstream from confluence of North and South Forks of Stillaguamish River, and at mile 11.1.	557	1975†, 1976-84	11-26-84 1-10-85 3-18-85 5-29-85 7-22-85 9-23-85	3,780 2,040 2,050 3,220 909 857

† Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1985--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		Samish River basin				
12201500 Samish River	Samish Bay	Lat 48°32'44", long 122°20'19", in SE¼SE¼ sec.6, T.35 N., R.4 E., Skagit County, 500 ft downstream from bridge on old U.S. Highway 99, 0.5 mi downstream from Friday Creek, 5.0 mi north of Burlington, and at mile 10.3.	87.8	1944-71†, a1972-79, 1972-74, 1976-84	10-16-84 1-10-85 3-21-85 5-23-85 7-25-85 9-26-85	100 183 184 135 33.6 26.8
		Minor basins between Samish and Nooksack Rivers				
12203000 Whatcom Creek	Bellingham Bay	Lat 48°45'10", long 122°25'40", in NW¼SE¼ sec.28, T.38 N., R.3 E., Whatcom County, in Whatcom Falls Park, 0.7 mi downstream from Lake Whatcom, and 2 mi east of Bellingham.	56.0	1910-14†, 1939-46†, 1973-75, 1981-84	7-23-85 9-24-85	12.3 4.32
		Nooksack River basin				
12208000 Middle Fork Nooksack River	North Fork Nooksack River	Lat 48°47'06", long 122°06'39", in SW¼NW¼ sec.13, T.38 N., R.5 E., Whatcom County, at county bridge (Mosquito Lake Road) 800 ft downstream from Heislers Creek, 5.6 mi southeast of Deming, and at mile 5.0.	75.4	1911, 1920, 1920-21†, 1934, 35†, 1955, 1959, 1973, 1979-84	7-23-85 9-24-85	443 150
		Pend Oreille River basin				
12396000 Calispell Creek	Pend Oreille River	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, 2.4 mi upstream from Calispell Lake, and 4.8 mi west of Dalkena.	68.3	1950-73†, 1974, 1976-83 a1974-84	4- 1-85 6- 6-85 9-24-85	42.0 45.7 13.5
12396100 Winchester Creek	Calispell Creek	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, at county road around Calispell Lake, and 4.8 mi southwest of Cusick.	16.8	1957†, 1964-68, 1975, 1977, 1980-83 a1954-84	6- 6-85	13.6
		Colville River basin				
12408000 Colville River	Franklin D. Roosevelt Lake	Lat 48°19'11", long 117°49'05", in NW¼NW¼ sec.31, T.33 N., R.40 E., Stevens County, upstream from county road bridge, just downstream from mouth of Blue Creek at town of Blue Creek, 5.5 mi northwest of Chewelah.	428	1923-24†, 1926, 1958-59, 1960-65†, 1975-77, 1979†, 1980-84	10-17-84 7-25-85 8-28-85	111 33.9 32.7
		Spokane River basin				
12427000 Little Spokane River	Spokane Ri[illegible]	Lat 48°01'01", long 117°16'32", in NW¼NE¼ sec.17, T.29 N., R.44 E., Spokane County, at county road crossing at Elk.	115	1980-82, 1984	10-17-84 7-25-85 8-28-85	49.7 38.8 39.4
12429500 Little Spokane River	.....do.....	Lat 47°53'22", long 117°21'16", in NE¼ sec.34, T.28 N., R.43 E., Spokane County, at county road crossing at Chattaroy.	301	1948†, 1952, 1955-58, 1960-70, 1973, 1977, 1979-81, 1984	10-17-84 7-25-85 8-28-85	107 62.7 60.8
12432000 Little Spokane River	.....do.....	Lat 47°46'59", long 117°31'43", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, at State Highway 291 crossing, 1.1 mi upstream from mouth, and 5.3 mi west of Dartford.	700	1903-05, 1912, 1913-14†, 1920-21, 1923-24, 1930-32, 1947-48, 1953, 1955-58, 1960-73, 1977-84	10-16-84 5- 1-85 8-29-85	436 687 358

† Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.

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Discharge measurements made at miscellaneous sites during water year 1985--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Sanpoil River basin				
12434590 Sanpoil River	Franklin D. Roosevelt Lake	Lat 48°05'04", long 118°41'25", in NW¼SW¼ sec.20, T.30 N., R.33 E., Ferry County, Colville Indian Reservation, at county highway bridge 0.4 mi upstream from Jack Creek, and 0.5 mi north of Keller.	900	1963, 1975-77, 1980-84	10-15-84 4- 9-85 8- 5-85	80.9 507 30.5
		Nespelem River basin				
12437505 Nespelem River	.....do.....	Lat 48°09'55", long 118°58'46", on south line of SE¼SE¼ sec.24, T.31 N., R.30 E., Okanogan County, Colville Indian Reservation, at county bridge at Nespelem, 0.2 mi downstream from millpond, and 3.9 mi upstream from Little Nespelem River.	123	1972-74†, a1975-79, 1981-84	10-15-84 4- 9-85 8- 5-85	14.5 95.9 8.78
		Okanogan River basin				
12443600 Similkameen River at Oroville	Okanogan River	Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, at Twelfth Avenue bridge in Oroville.	3,590	1929-30, 1935, 1937, 1939-40, 1943-44, 1975-84	3-20-85 5-23-85 7-24-85	446 15,300 641
12446000 Okanogan River	Columbia River	Lat 48°21'48", long 119°34'36", in SW¼NW¼ sec.16, T.33 N., R.26 E., Okanogan County, at Oak Street (formerly U.S. Highway 97) bridge in Okanogan, 150 ft northwest of Burlington Northern Railway depot, and 0.3 mi upstream from Salmon Creek.	b7,900	1911-25†, 1976, 1979-84	6-10-85 7-27-85 9-30-85	8,920 3,260 880
		Methow River basin				
12447382 Early Winters Creek	Methow River	Lat 48°35'55", long 120°26'31", in NE¼NE¼ sec.26, T.10 N., R.19 E., Okanogan National Forest, Okanogan County, at State Highway 20 bridge at Early Winters Ranger Station, 0.3 mi upstream from mouth, and 1.7 mi northwest of Mazama. Note.--New bridge is at slightly different location than Mazama quad sheet indicates.	---	1975-84	10-17-84 8- 7-85	25.6 16.5
12447374 Methow River	Columbia River	Lat 48°35'23", long 120°24'20", in NE¼SE¼ sec.25, T.36 N., R.19 E., Okanogan County, Okanogan National Forest, at State Highway 20 bridge 0.2 mi southwest of Mazama, and at mile 65.3.	363	1942, 1967, 1970-72, 1975-84	10-17-84 8- 7-85	40.6 86.7
12447500 Chewack River	Methow River	Lat 48°33'53", long 120°10'35", in SE¼NW¼ sec.2, T.35 N., R.21 E., Okanogan County, at road crossing 0.9 mi downstream from Boulder Creek, and 5.4 mi north of Winthrop.	466	1942, 1978-84	10-16-84 8- 6-85	108 43.9
12448500 Methow River	Columbia River	Lat 48°28'26", long 120°10'35", in NE¼SW¼ sec.2, T.34 N., R.21 E., Okanogan County, at state highway road crossing, 1,500 ft downstream from Chewack River, at south end of Winthrop.	1,007	1912†, 1948, 1971-72†, 1977-84	10-16-84 8- 6-85	323 285
12448998 Twisp River	Methow River	Lat 48°22'12", long 120°08'51", in SE¼SE¼ sec.12, T.33 N., R.21 E., Okanogan County, at county road crossing 0.8 mi west of Twisp city limits, and at mile 1.6.	245	1975-79†, 1980-84	10-15-84 8- 7-85	84.6 37.4
12449510 Methow River	.....do.....	Lat 48°21'55", long 120°06'54", in NE¼NW¼ sec.17, T.33 N., R.22 E., Okanogan County, 1,300 ft downstream from mouth of Twisp River, 0.3 mi east of center of Twisp, and at mile 40.0	1,301	1919-62†, 1967, 1970, d1975-76, d1978-79, 1980-84	10-15-84 6- 3-85 8- 7-85	424 5,210 281
		Entiat River basin				
12452990 Entiat River	Columbia River	Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, at bridge 1.2 mi west of Entiat High School, and at mile 1.5.	419	1971-72, 1975-84	10-17-84 3-22-85 7-25-85	154 168 229

† Operated as continuous-record gaging station.
a Operated as a crest-stage gage.
b Approximately.
d Published these years as at a site 2.7 miles farther downstream, in error.

Discharge measurements made at miscellaneous sites during water year 1985--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		Wenatchee River basin				
12457800 Wenatchee River	.....do.....	Lat 47°40'34", long 120°43'38", in NE¼SW¼ sec.9, T.25 N., R.17 E., Chelan County, Wenatchee National Forest, at U.S. Highway 2 crossing and Tumwater Campground, 0.4 mi downstream from mouth of Chiwaukum Creek, 4.1 mi south of Winton, and at mile 35.5.	---	1977-84	10-16-84 3-26-85 7-30-85	956 806 1,040
		Yakima River basin				
12491700 Hause Creek	Tieton River	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi west of Tieton Ranger Station, and 2.5 mi east of Rimrock.	3.91	a1955-84	6-25-85	e0.8
12511520 Yakima River	Columbia River	Lat 46°21'32", long 119°23'42", in NW¼NE¼ sec.14, T.10 N., R.27 E., Benton County, 2.4 mi downstream from Horn Rapids Dam, 4.0 mi northwest of Richland, and at mile 16.15.	---	1978-84	5- 3-85 8- 1-85	1,650 869
		Palouse River basin				
13348000 South Fork Palouse River	Palouse River	Lat 46°43'57", long 117°10'48", in NE¼NE¼ sec.6, T.14 N., R.45 E., Whitman County, on right bank at State Street crossing in Pullman, 600 ft upstream from Missouri Flat Creek, and at mile 22.2.	132	1934-42‡, 1948, 1954, 1958-59, 1959-82‡, 1983-84	3- 6-85 4- 2-85 7-15-85	75.9 260 3.93
		Walla Walla River basin				
14017600 Touchet River	Walla Walla River	Lat 46°02'29", long 118°40'59", in NE¼NE¼ sec.33, T.7 N., R.33 E., Walla Walla County, at U.S. Highway 12 crossing 0.5 mi west of Touchet, 0.6 mi upstream from mouth.	747	1962-65, 1972-75, 1977-84	11-19-84 2-26-85 4-24-85 6-18-85 8- 9-85 8-15-85	133 709 334 90.0 6.79 5.24

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage station.
e Estimate.

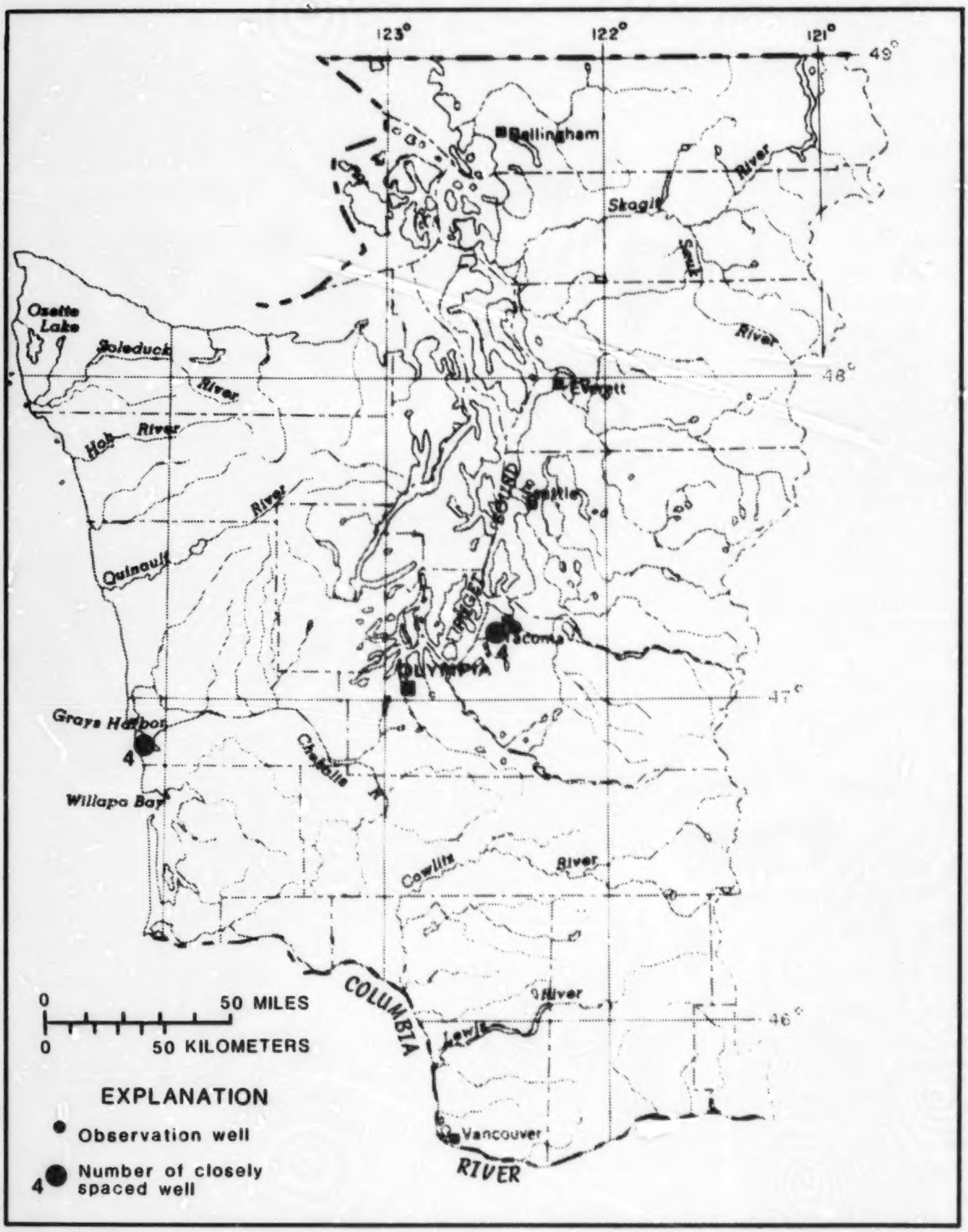
123°
122°
121°
49°
48°
47°
46°
Bellingham
Skagit
River
Sauk
River
Ozette Lake
Soleduck
River
Hoh
River
Quinault
River
Everett
Seattle
PUGET SOUND
Tacoma
4
OLYMPIA
Grays Harbor
4
Willapa Bay
Chehalis
Cowlitz
River
COLUMBIA
RIVER
Lewis
River
Vancouver
0
50 MILES
0
50 KILOMETERS
EXPLANATION
Observation well
4
Number of closely spaced well

Figure 34a.--Map of Western Washington showing locations of ground-water level observations.

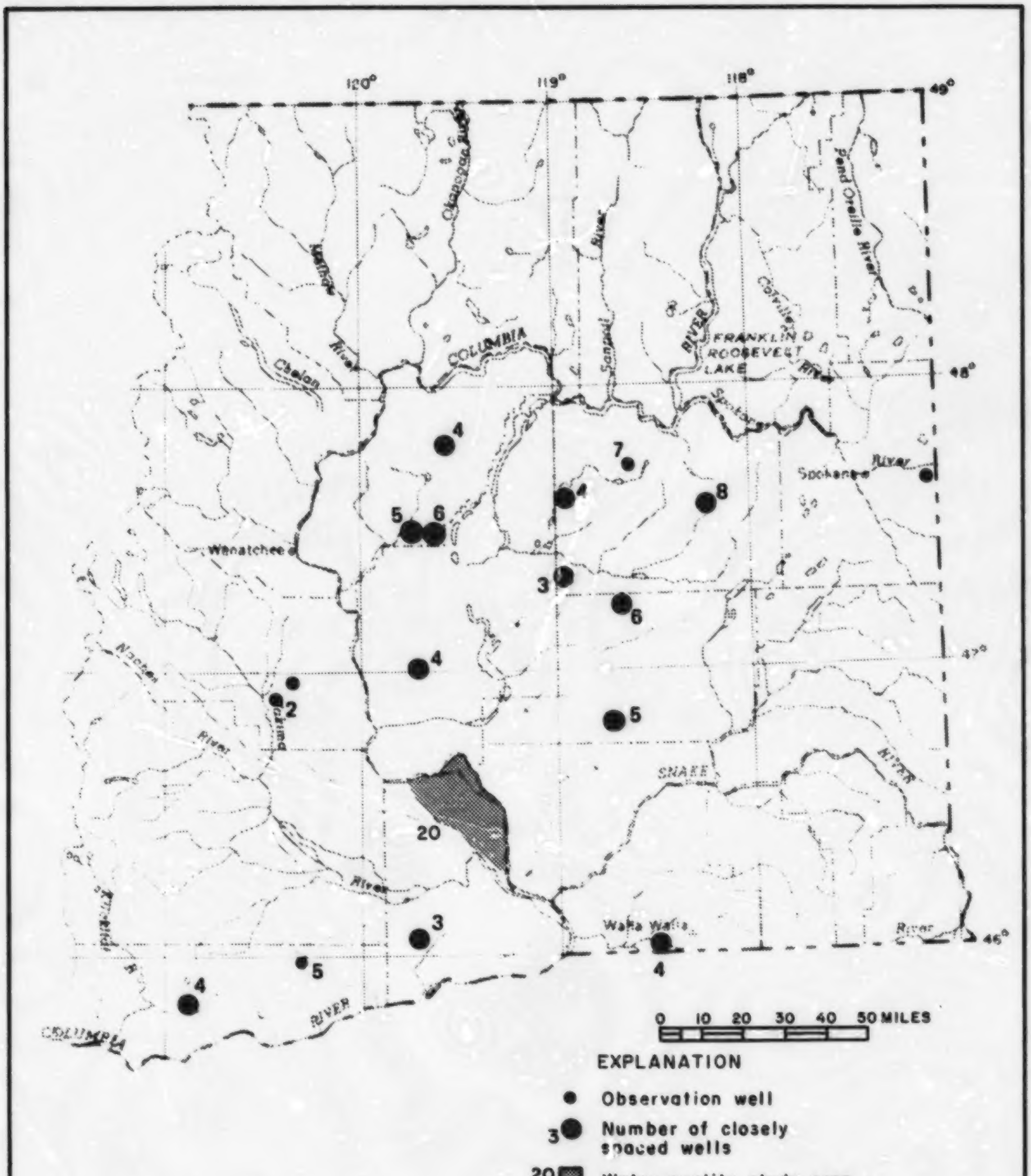
120°
119°
118°
49°
48°
47°
46°
Okanogan River
Methow River
Chelan
COLUMBIA
Sanpoil River
RIVER
FRANKLIN D ROOSEVELT LAKE
Colville River
Pend Oreille River
Spokane River
Spokane
Wenatchee
Naches River
Yakima
SNAKE
RIVER
River
Walla Walla
River
Klickitat R
COLUMBIA
RIVER
4
5
6
7
4
8
3
6
4
2
5
20
3
4
5
4
0 10 20 30 40 50 MILES
EXPLANATION
● Observation well
3 ● Number of closely spaced wells
20 ▨ Water quality study area and number of sites

Figure 34b.--Map of Eastern Washington showing locations of ground-water level observations.

ADAMS COUNTY

464445118461002. Local number, 15/32-35E2.
LOCATION.--Lat 46°44'34", long 118°46'05", Hydrologic Unit 17020016, near Connell.
Owner: REHCO
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--1¼ in diameter open-ended pipe to 845 ft in 12 in diameter plugged off open section of drilled artesian well, total depth 966 ft, uncased depth interval from 840 to 966 ft.
DATUM.--Elevation of land-surface datum is 1,242 ft.
PERIOD OF RECORD.--October 1980 to current year.
REMARKS.--Water level measured in one of five piezometers.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 578.0 ft below land-surface datum, Jan. 26, 1983; lowest measured, 607 ft below land-surface datum, Sept. 27, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
FEB 20	587.0	SEP 23	605.8

464445118461003. Local number, 15/32-35E3.
LOCATION.--Lat 46°44'34", long 118°46'05", Hydrologic Unit 17020016, near Connell.
Owner: REHCO
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--1¼ in diameter open-ended pipe to 719 ft in 16 to 12 in diameter plugged off open section of drilled artesian well, total depth 825 ft, uncased depth interval from 714 to 825 ft.
REMARKS.--Water level measured in one of five piezometers.
DATUM.--Elevation of land-surface datum is 1,242 ft.
PERIOD OF RECORD.--October 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 579.7 ft below land-surface datum, May 26, 1982; lowest measured, 608.0 ft below land-surface datum, Sept. 23, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 24	605.5	FEB 20	587.6	SEP 23	608.0

464445118461005. Local number, 15/32-35E5.
LOCATION.--Lat 46°44'34", long 118°46'05", Hydrologic Unit 17020016, near Connell.
Owner: REHCO
AQUIFER.--Wanapum Basalt of Miocene Age.
WELL CHARACTERISTICS.--1¼ in diameter open-ended pipe to 383 ft in plugged off open section of 16-in diameter drilled artesian well, total depth 573 ft, uncased depth interval from 378 to 573 ft.
DATUM.--Elevation of land-surface datum is 1,242 ft.
REMARKS.--Water level measured in one of five piezometers.
PERIOD OF RECORD.--October 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 295.2 ft below land-surface datum, Nov. 30, 1982; lowest measured, 355.3 ft below land-surface datum, Oct. 31, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 24	299.95	FEB 20	297.9	SEP 23	298.2

464445118461006. Local number, 15/32-35E6.
LOCATION.--Lat 46°44'34", long 118°46'05", Hydrologic Unit 17020016, near Connell.
Owner: REHCO
AQUIFER.--Wanapum Basalt of Miocene Age.
WELL CHARACTERISTICS.--1¼ in diameter open-ended pipe to 295 ft inside a 16 in diameter drilled water-table well, cased to 36.5 ft, total depth 362 ft, uncased depth interval from 36.5 to 362 ft.
DATUM.--Elevation of land-surface datum is 1,242 ft.
REMARKS.--Water level measured in one of five piezometers.
PERIOD OF RECORD.--November 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 290.5 ft below land-surface datum, Sept. 23, 1985; lowest measured, 324.9 ft below land-surface datum, Mar. 23, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 24	299.2	FEB 20	297.0	SEP 23	290.5

471347118410101. Local number, 20/33-16E1.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test water-table well, diameter 10 in, total depth 750 ft, uncased depth interval from 70 to 94 ft.
DATUM.--Elevation of land-surface datum is 1,670 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.34 ft below land-surface datum, June 20, 1975; lowest measured, 93.38 ft below land-surface datum, Apr. 23, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 11	83.8	FEB 27	84.0

471347118410102. Local number, 20/33-16E2.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in, total depth 750 ft, uncased depth interval from 158 to 183 ft.
DATUM.--Elevation of land-surface datum is 1,670 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.35 ft below land-surface datum, Mar. 23, 1972; lowest measured, 142.2 ft below land-surface datum, June 23, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 11	136.0	FEB 27	135.9

471347118410103. Local number, 20/33-16E3.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in, total depth 750 ft, uncased depth interval from 282 to 299 ft.
DATUM.--Elevation of land-surface datum is 1,670 ft.
REMARKS.--Water-level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft below land-surface datum, Feb. 23, 1972; lowest measured, 153.1 ft below land-surface datum, Dec. 12, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 11	146.3	FEB 27	145.4

471347118410104. Local number, 20/33-16E4.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 750 ft, uncased depth interval from 352 to 401 ft.
DATUM.--Elevation of land-surface datum is 1,670 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.46 ft below land-surface datum, Mar. 23, 1972; lowest measured, 138.32 ft below land-surface datum, Mar. 7, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 11	132.9	FEB 27	132.5

ADAMS COUNTY--Continued

471347118410105. Local number, 20/33-16E5.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 750 ft, uncased depth interval from 586 to 616 ft.
DATUM.--Elevation of land-surface datum is 1,670 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.35 ft below land-surface datum, Feb 23, 1972; lowest measured, 299.9 ft below land-surface datum, June 25, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 11	288.3	FEB 27	259.6

471347118410106. Local number, 20/33-16E6.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 750 ft, uncased depth interval from 676 to 701 ft.
DATUM.--Elevation of land-surface datum is 1,670 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 279.19 ft below land-surface datum, Apr. 21, 1971; lowest measured, 413.2 ft below land-surface datum, June 29, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 11	398.0	FEB 27	364.0

BENTON COUNTY

460237119383001. Local number, 7/25-36N1.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in, total depth 860 ft, uncased depth interval from 105 to 185 ft.
DATUM.--Elevation of land-surface datum is 730 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 85.89 ft below land-surface datum, Sept. 26, 1985; lowest measured, 133.50 ft below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	88.25	MAR 6	86.81	SEP 26	85.89

460237119383003. Local number, 7/25-36N3.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 860 ft, uncased depth interval from 720 to 755 ft.
DATUM.--Elevation of land-surface datum is 730 ft.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 362.5 ft below land-surface datum, Jan. 18, 1979; lowest measured, 389.7 ft below land-surface datum, Oct. 29, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	389.7	MAR 6	389.13	SEP 26	388.1

BENTON COUNTY--Continued

460237119383004. Local number, 7/25-36N4.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 860 ft, uncased depth interval from 770 to 860 ft.
DATUM.--Elevation of land-surface datum is 730 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 361.9 ft below land-surface datum, Jan. 18, 1979; lowest measured, 391.32 ft below land-surface datum, Nov. 10, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	387.4	MAR 6	384.6	SEP 27	389.5

DOUGLAS COUNTY

472741119402202. Local number, 23/25-27L2.
LOCATION.--Lat 47°27'41", long 119°40'22", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Sagebrush Flat
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 1,260 ft, screened 1,260 to 1,265 ft in a 16-in to 10-inch diameter drilled artesian observation-test well, depth interval 1,205 to 1,300 ft.
DATUM.--Elevation of land-surface datum is 1,700 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 427.6 ft below land-surface datum, Mar. 6, 1984; lowest measured, 440.33 ft below land-surface datum, Sept. 29, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	423.6	MAR 12	420.3

472741119402203. Local number, 23/25-27L3.
LOCATION.--Lat 47°27'41", long 119°40'22", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Sagebrush Flat.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 1,155 ft, screened 1,155 to 1,160 ft in a 16-in to 10-in diameter drilled artesian observation-test well, depth interval 1,039 to 1,196 ft.
DATUM.--Elevation of land-surface datum is 1,700 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 387.1 ft below land-surface datum, Mar. 22, 1983; lowest measured, 441.0 ft below land-surface datum, Oct. 19, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	437.6	MAR 12	437.0

472741119402204. Local number, 23/25-27L4.
LOCATION.--Lat 47°27'41", long 119°40'22", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Sagebrush Flat
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 987 ft, screened 987 to 992 ft in a 16-in to 10-in diameter drilled artesian observation-test well, depth interval 963 to 1,030 ft.
DATUM.--Elevation of land-surface datum is 1,700 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 390.3 ft below land-surface datum, Mar. 22, 1983; lowest measured, 441.40 ft below land-surface datum, Sept. 19, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	438.9	MAR 12	436.7

DOUGLAS COUNTY--Continued

472741119402205. Local number, 23/25-27L5.
LOCATION.--Lat 47°27'41", long 119°40'22", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Sagebrush Flat.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 850 ft, screened 850 to 855 ft in a 16-in to 10-in diameter drilled artesian observation-test well, depth interval 834 to 958 ft.
DATUM.--Elevation of land-surface datum is 1,700 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 436.7 ft below land-surface datum, Mar. 6, 1984; lowest measured, 441.42 ft below land-surface datum, Sept. 29, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	439.0	MAR 12	438.4

472741119402206. Local number, 23/25-27L6.
LOCATION.--Lat 47°27'41", long 119°40'22", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Sagebrush Flat.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled artesian observation-test well, casing diameter 16 in to 12 in, cased to 801 ft, depth 827 ft.
DATUM.--Elevation of land-surface datum is 1,700 ft.
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--September 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 438.6 ft below land-surface datum, Mar. 12, 1985; lowest measured, 441.32 ft below land-surface datum, Sept. 29, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	439.2	MAR 12	438.6

472857119354004. Local number, 23/26-20D2.
LOCATION.--Lat 47°28'57", long 119°35'48", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Pixlee.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 1,260 ft, screened 1,260 to 1,265 ft in a 16-in to 8-in diameter drilled artesian well, depth interval 1,207 to 1,315 ft.
DATUM.--Elevation of land-surface datum is 1,920 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--October 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 595.9 ft below land-surface datum, Mar. 6, 1984; lowest measured, 603.0 ft below land-surface datum, Jan. 28, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	602.0	MAR 12	602.9

472857119354005. Local number, 23/26-20D3.
LOCATION.--Lat 47°28'57", long 119°35'48", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Pixlee.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 935 ft, screened 935 to 940 ft in a 16-in to 8-in diameter drilled artesian well, depth interval 856 to 992 ft.
DATUM.--Elevation of land-surface datum is 1,920 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--October 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 489.3 ft below land-surface datum, Oct. 10, 1984; lowest measured, 516.20 ft below land-surface datum, Oct. 1, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	489.3	MAR 12	489.6

DOUGLAS COUNTY--Continued

472857119354006. Local number, 23/26-2004.
LOCATION.--Lat 47°28'57", long 119°35'48", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Pixlee.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 798 ft, screened 798 to 803 ft in a 16-in to 8-in diameter drilled artesian well, depth interval 693 to 846 ft.
DATUM.--Elevation of land-surface datum is 1,920 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--October 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 491.8 ft below land-surface datum, Oct. 10, 1984, Mar. 12, 1985; lowest measured, 523.35 ft below land-surface datum, Oct. 1, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	491.8	MAR 12	491.8

472857119354007. Local number, 23/26-2005.
LOCATION.--Lat 47°28'57", long 119°35'48", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Pixlee.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 588 ft, screened 588 to 593 ft in a 16-in to 8-in diameter drilled artesian well, depth interval 551 to 615 ft.
DATUM.--Elevation of land-surface datum is 1,920 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--October 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 534.3 ft below land-surface datum, Mar. 12, 1985, lowest measured, 567.1 ft below land-surface datum, Oct. 1, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	535.7	MAR 12	534.3

472857119354008. Local number, 23/26-2006.
LOCATION.--Lat 47°28'57", long 119°35'48", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Pixlee.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Casing diameter 1.25 in to 504 ft, screened 504 to 509 ft in a 16-in to 8-in diameter drilled artesian well, depth interval 479 to 541 ft.
DATUM.--Elevation of land-surface datum is 1,920 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--October 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--All readings are dry.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	dry	MAR 12	dry

472857119354009. Local number, 23/26-2007.
LOCATION.--Lat 47°28'57", long 119°35'48", Hydrologic Unit 17020012, near Ephrata.
Owner: Washington Department of Ecology - Pixlee.
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled artesian well, casing diameter 16 in to 55 ft, depth 466 ft.
DATUM.--Elevation of land-surface datum is 1,920 ft.
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--October 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 356.8 ft below land-surface datum, Mar. 22, 1983; lowest measured, 373.5 ft below land-surface datum, Oct. 1, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	obstructed	MAR 12	356.9

DOUGLAS COUNTY--Continued

474855119303901. Local number, 27/26-25D1.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in, total depth 760 ft, completed depth interval from 38 to 53 ft.
DATUM.--Elevation of land-surface datum is 2,215 ft.
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.97 ft below land-surface datum, May 27, 1983; lowest measured, 22.95 ft below land-surface datum, Oct. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 9	11.30	MAR 13	14.85	SEP 17	15.6

474855119303902. Local number, 27/26-25D2.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 760 ft, completed depth interval from 70 to 152 ft, uncased.
DATUM.--Elevation of land-surface datum is 2,215 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.23 ft below land-surface datum, May 27, 1983; lowest measured, 102.48 ft below land-surface datum, Jan. 20, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 9	80.67	MAR 13	83.6	SEP 17	84.75

474855119303904. Local number, 27/26-25D4.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 760 ft, completed depth interval from 490 to 610 ft, uncased, and perforated from 465 to 485 ft.
DATUM.--Elevation of land-surface datum is 2,215 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 277.40 ft below land-surface datum, Apr. 20, 1974; lowest measured, 324.95 ft below land-surface datum, July 23, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 9	316.6	MAR 13	309.15	SEP 17	308.45

474855119303905. Local number, 27/26-25D5.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, total depth 760 ft, completed depth interval from 630 to 687 ft uncased, and screened from 750 to 760 ft.
DATUM.--Elevation of land-surface datum is 2,215 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 309.45 ft below land-surface datum, Sept. 17, 1985; lowest measured, 327.90 ft below land-surface datum, Apr. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 9	315.98	MAR 13	311.65	SEP 17	309.45

GRANT COUNTY

470308119405801. Local number, 18/25-15E1.
LOCATION.--Lat 47°03'08", long 119°40'58", Hydrologic Unit 17020015, near George.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Wanapum basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled observation-test well, diameter 10 in, total depth 976 ft, cased to 976 ft, perforated at intervals from 350 to 900 ft.
DATUM.--Elevation of land-surface datum is 1,156.69 ft.
PERIOD OF RECORD.--August 1975 to December 1977, February 1979 to current year.
REMARKS.--Well deepened to 1,610 ft in February 1978, then backfilled when piezometers 18/25-15E6, 7, & 8 were installed in the well.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 69.1 ft below land-surface datum, Mar. 12, 1981; lowest measured, 231.40 ft below land-surface datum, June 27, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	154.5	FEB 26	72.90

470308119405802. Local number, 18/25-15E6.
LOCATION.--Lat 47°03'08", long 119°40'58", Hydrologic Unit 17020015, near George.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Grand Ronde basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled observation-test well, total depth 1,610 ft, casing diameter 1.25 in, casing depth 1,168 ft, screened 1,163 to 1,168 ft.
DATUM.--Elevation of land-surface datum is 1,156.69 ft.
PERIOD OF RECORD.--March 1979 to current year.
REMARKS.--Water level measured in piezometer.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 375.35 ft below land-surface datum, Feb. 26, 1985; lowest measured, 382.39 ft below land-surface datum, Mar. 22, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	377.3	FEB 26	375.35

470308119405803. Local number, 18/25-15E7.
LOCATION.--Lat 47°03'08", long 119°40'58", Hydrologic Unit 17020015, near George.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Grande Ronde basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled observation-test well, total depth 1,610 ft, casing diameter 1.25 in, casing depth 1,411 ft, screened 1,406 to 1,411 ft.
DATUM.--Elevation of land-surface datum is 1,156.69 ft.
PERIOD OF RECORD.--March 1979 to current year.
REMARKS.--Water level measured in piezometer.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 376.63 ft below land-surface datum, Feb. 26, 1985; lowest measured, 383.0 ft below land-surface datum, June 27, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	377.5	FEB 26	376.63

470308119405804. Local number, 18/25-15E8.
LOCATION.--Lat 47°03'08", long 119°40'58", Hydrologic Unit 17020015, near George.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Grande Ronde basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled observation-test well, total depth 1,610 ft, casing diameter 1.25 in, casing depth 1,546 ft, screened 1,541 to 1,546 ft.
DATUM.--Elevation of land-surface datum is 1,156.69 ft.
PERIOD OF RECORD.--March 1979 to current year.
REMARKS.--Water level measured in piezometer.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 379.88 ft below land-surface datum, Feb. 26, 1985; lowest measured, 382.69 ft below land-surface datum, Mar. 22, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 10	381.1	FEB 26	379.88

GRAYS HARBOR COUNTY

465123124062201. Local number, 16/12W-24J4.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in, depth 700 ft, 12-in diameter casing to 398 ft, 8-in diameter casing 378 to 678 ft, perforated 187 to 192 ft, 269 to 279 ft, 327 to 332 ft, and 516 to 521 ft.
DATUM.--Elevation of land-surface datum is 15.65 ft National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 187 to 192 ft, water level measured in 12-in diameter casing.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.63 ft below land-surface datum, Jan. 20, 1982; lowest measured, 11.05 ft below land-surface datum, Oct. 4, 1974, Aug. 8, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
AUG 8	10.56

465123124062202. Local number, 16/12W-24J5.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in, depth 700 ft, 12-in diameter casing to 398 ft, 8-in diameter casing 378 to 678 ft, perforated 187 to 192 ft, 269 to 279 ft, 327 to 332 ft, and 516 to 521 ft.
DATUM.--Elevation of land-surface datum is 15.65 ft National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 269 to 279 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.30 ft below land-surface datum, Jan. 10, 1978; lowest measured, 14.37 ft below land-surface datum, Jan. 20, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
AUG 8	10.31

465123124062203. Local number, 16/12W-24J6.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in, depth 700 ft, 12-in diameter casing to 398 ft, 8-in diameter casing 378 to 678 ft, perforated 187 to 192 ft, 269 to 279 ft, 327 to 332 ft, and 516 to 521 ft.
DATUM.--Elevation of land-surface datum is 15.65 ft National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 327 to 332 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.36 ft below land-surface datum, Jan. 20, 1982; lowest measured, 10.37 ft below land-surface datum, Aug. 8, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
AUG 8	10.11

465123124062204. Local number, 16/12W-24J7.
LOCATION.--Lat 46°51'23", long 124°06'22", Hydrologic Unit 17100106, near Westport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Sandy clay of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in, depth 700 ft, 12-in diameter casing to 398 ft, 8-in diameter casing 378 to 678 ft, perforated 187 to 192 ft, 269 to 279 ft, 327 to 332 ft, and 516 to 521 ft.
DATUM.--Elevation of land-surface datum is 15.65 ft National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 516 to 521 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.68 ft below land-surface datum, Jan. 27, 1983; lowest measured, 20.28 ft below land-surface datum, Aug. 19, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
AUG 8	12.13

KITTITAS COUNTY

465111120272701. Local number, 16/19-28C1.
LOCATION.--Lat 46°51'11", long 120°27'27", Hydrologic Unit 17030001, near Ellensburg.
Owner: State of Washington
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, 10- to 8-in diameter, cased to 474 ft, total depth 1,019 ft, uncased depth interval from 474 to 1,019 ft.
REMARKS.--Well 16/19-28C1 is inside well 16/19-28C2.
DATUM.--Elevation of land-surface datum is 1,425 ft.
PERIOD OF RECORD.--February 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.79 ft below land-surface datum, Aug. 20, 1980; lowest measured, 24.33 ft below land-surface datum, Sept. 23, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
OCT 31	21.51

465111120272702. Local number, 16/19-28C2.
LOCATION.--Lat 46°51'11", long 120°27'27", Hydrologic Unit 17030001, near Ellensburg.
Owner: State of Washington
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--Drilled 12-in diameter observation artesian well, total depth 474 ft, uncased depth interval from 169 to 474 ft.
DATUM..--Elevation of land-surface datum is 1,425 ft.
REMARKS.--Well 16/19-28C1 is inside well 16/19-28C2.
PERIOD OF RECORD.--March 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.12 ft below land-surface datum, Mar. 1, 1978; lowest measured, 51.62 ft below land-surface datum, June 3, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
OCT 31	47.14

465538120204801. Local number, 17/20-29R1.
LOCATION.--Lat 46°55'38", long 120°20'48", Hydrologic Unit 17030001, near Ellensburg.
Owner: State of Washington
AQUIFER.--Sand and gravel of Ellensburg Formation of Miocene Age.
WELL CHARACTERISTICS.--Drilled 10-in diameter observation water-table well, depth 400 ft, cased to 400 ft.
DATUM.--Elevation of land-surface datum is 1,830 ft.
PERIOD OF RECORD.--October 1978 to March 1983, October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.9 ft below land-surface datum, Oct. 5, 1978; lowest measured, 80.7 ft below land-surface datum, Feb. 5, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level
OCT 31	57.8

KLICKITAT COUNTY

455008120561301. Local number, 4/15-16F1.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 in, depth 595 ft, 12-in diameter casing to 331 ft, perforated 40 to 331 ft.
DATUM.--Elevation of land-surface datum is 1,590 ft.
REMARKS.--Monitored depth interval from 40 to 210 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.1 ft below land-surface datum, Apr. 12, 1976; lowest measured, 43.22 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	31.67	MAR 12	35.44	SEP 24	43.22

KLICKITAT COUNTY--Continued

455008120561302. Local number, 4/15-16F2.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in, depth 595 ft, 12-in diameter casing to 331 ft, perforated 40 to 331 ft.
DATUM.--Elevation of land-surface datum is 1,590 ft.
REMARKS.--Monitored depth interval from 215 to 330 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.0 ft below land-surface datum, Apr. 12, 1976; lowest measured, 43.14 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	31.13	MAR 12	35.32	SEP 24	43.14

455008120561303. Local number, 4/15-16F3.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in, depth 595 ft, 12-in diameter casing to 331 ft, perforated 40 to 331 ft.
DATUM.--Elevation of land-surface datum is 1,590 ft.
REMARKS.--Monitored depth interval from 500 to 580 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.6 ft below land-surface datum, Apr. 12, 1976; lowest measured, 44.09 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	31.68	MAR 12	35.68	SEP 24	44.09

455008120561304. Local number, 4/15-16F4.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in, depth 595 ft, 12-in diameter casing to 331 ft, perforated 40 to 331 ft.
DATUM.--Elevation of land-surface datum is 1,590 ft.
REMARKS.--Monitored depth interval from 335 to 440 ft, water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 195.6 ft below land-surface datum, Mar. 16, 1982; lowest measured, 223.60 ft below land-surface datum, Apr. 30, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	196.44	MAR 12	196.02	SEPT 24	202.79

455458120112702. Local number, 5/21-16L2.
LOCATION.--Lat 45°54'58", long 120°11'27", Hydrologic Unit 17070101, near Bickleton.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 8 in, total depth 1,500 ft, uncased depth interval from 1,469 to 1,474 ft.
DATUM.--Elevation of land-surface datum is 2,304 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--August 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 677.25 ft below land-surface datum, Mar. 1, 1982; lowest measured, 683.5 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	683.2	MAR 14	683.3	SEP 24	683.5

455458120112704. Local number, 5/21-16L4.
LOCATION.--Lat 45°54'58", long 120°11'27", Hydrologic Unit 17070101, near Bickleton.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 8 in, total depth 1,500 ft, uncased depth interval from 1,092 to 1,097 ft.
DATUM.--Elevation of land-surface datum is 2,304 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--August 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 679.0 ft below land-surface datum, Mar. 1, 1982; lowest measured, 683.2 below land-surface datum, Oct. 29, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	683.2	MAR 14	682.8	SEP 24	683.0

455458120112705. Local number, 5/21-16L5.
LOCATION.--Lat 45°54'58", long 120°11'27", Hydrologic Unit 17070101, near Bickleton.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 8 in, total depth 1,500 ft, uncased depth interval from 966 to 971 ft.
DATUM.--Elevation of land-surface datum is 2,304 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--August 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 679.05 ft below land-surface datum, Dec. 9, 1981, Mar. 1, 1982; lowest measured, 683.4 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	683.3	MAR 14	683.2	SEP 24	683.4

455458120112706. Local number, 5/21-16L6.
LOCATION.--Lat 45°54'58", long 120°11'27", Hydrologic Unit 17070101, near Bickleton.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 8 in, total depth 1,500 ft, uncased depth interval from 802 to 807 ft.
DATUM.--Elevation of land-surface datum is 2,304 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--August 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 679.05 ft below land-surface datum, Dec. 9, 1981, Mar. 1, 1982; lowest measured, 683.3 ft below land-surface datum, Oct. 29, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 29	683.3	MAR 14	682.1

455458120112707. Local number, 5/21-16L7.
LOCATION.--Lat 45°54'58", long 120°11'27", Hydrologic Unit 17070101, near Bickleton.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 8 in, total depth 1,500 ft, uncased depth interval from 423 to 598 ft.
DATUM.--Elevation of land-surface datum is 2,304 ft.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--August 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 580.0 ft below land-surface datum, Dec. 9, 1981, Feb. 17, 1984; lowest measured, dry, Oct. 29, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	dry	MAR 14	dry	SEP 24	dry

LINCOLN COUNTY

471937118544402. Local number, 21/31-10M2.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in, depth 4,682 ft, cased to 98 ft.
DATUM.--Elevation of land-surface datum is 1,610 ft.
REMARKS.--Monitored depth interval from 98 to 735 ft, water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 230.25 ft below land-surface datum, Jan. 8, 1973; lowest measured, 289.7 ft below land-surface datum, June 21, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	289.2	FEB 28	287.4

471937118544403. Local number, 21/31-10M3.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in, depth 4,682 ft, cased to 98 ft.
DATUM.--Elevation of land-surface datum is 1,610 ft.
REMARKS.--Monitored depth interval from 742 to 1,480 ft, water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 231.32 ft below land-surface datum, Jan. 8, 1973; lowest measured, 338.3 ft below land-surface datum, Oct. 4, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	324.0	FEB 28	307.3

471937118544404. Local number, 21/31-10M4.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in, depth 4,682 ft, cased to 98 ft.
DATUM.--Elevation of land-surface datum is 1,610 ft.
REMARKS.--Monitored depth interval from 1,488 to 2,300 ft, water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 224.56 ft below land-surface datum, May 24, 1976; lowest measured, 241.9 ft below land-surface datum, Oct. 4, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	238.0	FEB 28	235.8

473433118560301. Local number, 24/31-16E1.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in, depth 750 ft, cased to 60 ft.
DATUM.--Elevation of land-surface datum is 1,845 ft.
REMARKS.--Monitored depth interval from 60 to 316 ft, water level measured in 10 in diameter casing.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 175.20 ft below land-surface datum, Sept. 1, 1975; lowest measured, 186.4 ft below land-surface datum, Mar. 18, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	175.9	MAR 4	175.4

LINCOLN COUNTY--Continued

473433118560302. Local number 24/31-15E2.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 60 ft.
DATUM.--Elevation of land-surface datum is 1,845 ft.
REMARKS.--Monitored depth interval from 424 to 456 ft, water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.65 ft below land-surface datum, Jan. 31, 1977; lowest measured, 393.1 ft below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	363.7	MAR 4	366.3

473433118560303. Local number, 24/31-16E3.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft cased to 60 ft.
DATUM.--Elevation of land-surface datum is 1,845 ft.
REMARKS.--Monitored depth interval from 494 to 556 ft, water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.53 ft below land-surface datum, Jan. 31, 1977; lowest measured, 393.6 ft below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	364.8	MAR 4	366.3

473433118560304. Local number, 24/31-16E4.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 60 ft.
DATUM.--Elevation of land-surface datum is 1,845 ft.
REMARKS.--Monitored depth interval 650 to 698 ft, water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.30 ft below land-surface datum, Jan. 31, 1977; lowest measured, 393.5 ft below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	364.8	MAR 4	366.3

473442118162201. Local number, 24/36-16A1.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 75 to 116 ft, water level measured in 10 in casing.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.52 ft below land-surface datum, May 1, 1974; lowest measured, 46.10 ft below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	34.4	MAR 7	35.5

473442118162202. Local number, 24/36-16A2.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 123 to 160 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.38 ft below land-surface datum, May 1, 1974; lowest measured, 46.22 ft below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	34.4	MAR 7	35.5

473442118162203. Local number, 24/36-16A3.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 208 to 224 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.24 ft below land-surface datum, May 1, 1974; lowest measured, 46.25 ft below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	34.4	MAR 7	35.5

473442118162204. Local number, 24/36-16A4.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 242 to 261 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.47 ft below land-surface datum, May 1, 1974; lowest measured, 46.45 ft below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	34.4	MAR 7	35.5

473442118162205. Local number, 24/36-16A5.
LOCATION.--47°34'42", long 188°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 315 to 365 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.90 ft below land-surface datum, May 1, 1974; lowest measured, 50.53 ft below land-surface datum, Sept. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	36.3	MAR 7	37.0

LINCOLN COUNTY--Continued

473442118162206. Local number, 24/36-16A6.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 451 to 491 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.93 ft below land-surface datum, Mar. 2, 1976; lowest measured, 66.34 ft below land-surface datum, Sept. 20, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	38.4	MAR 7	36.6

473442118162207. Local number, 24/36-16A7.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 590 to 635 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.47 ft below land-surface datum, Mar. 2, 1972; lowest measured, 213.6 ft below land-surface datum, Aug. 23, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	199.8	MAR 7	191.5

473442118162208. Local number, 24/36-16A8.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in, depth 750 ft, cased to 75 ft.
DATUM.--Elevation of land-surface datum is 2,372 ft.
REMARKS.--Monitored depth interval from 728 to 750 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.82 ft below land-surface datum, Mar. 2, 1972; lowest measured, 214.77 ft below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 9	199.9	MAR 7	191.4

473758118325204. Local number, 25/34-29J4.
LOCATION.--Lat 47°38'00", long 118°32'53", Hydrologic Unit 17020013.
Owner: Richard Dreyer
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--1-1/4 in diameter open-ended pipe to 715 ft in 12-in diameter plugged off drilled artesian well, uncased gravel-filled section 700-747 ft.
DATUM.--Elevation of land-surface datum is 2,284 ft.
PERIOD OF RECORD.--March 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 547.6 ft below land-surface datum, Mar. 2, 1984; lowest measured, 547.9 ft below land-surface datum, Mar. 1, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR MARCH 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
MAR 2, 1984	547.6	MAR 1, 1985	547.9

LINCOLN COUNTY--Continued

473758118325205. Local number, 25/34-29J5.
LOCATION.--Lat 47°38'00", long 118°32'53", Hydrologic Unit 17020013.
Owner: Richard Dreyer
AQUIFER.--Grande Ronde Basalt of Miocene Age.
WELL CHARACTERISTICS.--1-1/4 in diameter pipe to 408 ft, screened 408-413 ft in 15-in diameter plugged off drilled artesian well, uncased gravel-filled section 364-463 ft.
DATUM.--Elevation of land-surface datum is 2,284 ft.
PERIOD OF RECORD.--March 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.1 ft below land-surface datum, Mar. 2, 1984; lowest measured, 63.3 ft below land-surface datum, Mar. 1, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR MARCH 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
MAR 2, 1984	63.1	MAR 1, 1985	63.3

473758118325206. Local number, 25/34-29J6.
LOCATION.--Lat 47°38'00", long 118°32'53", Hydrologic Unit 17020013.
Owner: Richard Dreyer
AQUIFER.--Wanapum Basalt of Miocene Age.
WELL CHARACTERISTICS.--1-1/4 in diameter pipe to 314 ft screened 314-319 ft in 15-in diameter plugged off section drilled artesian well, uncased gravel-filled section 259-352 ft.
DATUM.--Elevation of land-surface datum is 2,284 ft.
PERIOD OF RECORD.--March 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.1 ft below land-surface datum, Mar. 2, 1984; lowest measured, 63.8 ft below land-surface datum, Mar. 1, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR MARCH 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
MAR 2, 1984	63.1	MAR 1, 1985	63.8

473758118325207. Local number, 25/34-29J7.
LOCATION.--Lat 47°38'00", long 118°32'53", Hydrologic Unit 17020013.
Owner: Richard Dreyer
AQUIFER.--Wanapum Basalt of Miocene Age.
WELL CHARACTERISTICS.--1-1/4 in diameter open-ended pipe in 15-in diameter drilled water-table well, uncased open section 22-259 ft.
DATUM.--Elevation of land-surface datum is 2,284 ft.
PERIOD OF RECORD.--March 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.6 ft below land-surface datum, Mar. 1, 1985; lowest measured, 46.0 ft below land-surface datum, Mar. 2, 1984.

WATER LEVEL. IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR MARCH 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
MAR 2, 1984	46.0	MAR 1, 1985	45.6

PIERCE COUNTY

471358122302207. Local number, 20/2-11J7.
LOCATION.--Lat 47°13'58", long 122°30'22", Hydrologic Unit 17110019.
Owner: Fircrest Well No. 3.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in, depth 152 ft, perforated 88 to 94 ft and 141 to 149 ft.
DATUM.--Elevation of land-surface datum is 285 ft.
PERIOD OF RECORD.--August 1963 to February 1964, December 1970 to September 1985 (discontinued).
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 56.40 ft below land-surface datum, May 25, 1984; lowest measured, 68.21 ft below land-surface datum, Oct. 1, 1973. Water level measurements affected by nearby pumpage.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
NOV 26	58.20	MAR 25	56.80	JUN 21	58.25	JUL 24	60.10
JAN 25	57.80	MAY 23	57.60				

PIERCE COUNTY--Continued

471329122310501. Local number, 20/2-14F2.

LOCATION.--Lat 47°13'29", long 122°31'05", Hydrologic Unit 17110019.

Owner: Fircrest Well No. 6.

AQUIFER.--Glacial sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 16 in, depth 203 ft, screened 162 to 172 ft and 178 to 198 ft.

DATUM.--Elevation of land-surface datum is 365 ft.

PERIOD OF RECORD.--August 1979 to September 1985 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 150.80 ft below land-surface datum, Nov. 23, 1983; lowest measured, 175.84 ft below land-surface datum, May 6, 1980. Water level measurements are affected by nearby pumpage.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 10	157.81	JAN 25	151.00	MAY 23	155.80	JUL 24	156.80
NOV 26	151.40						

471308122305501. Local number, 20/2-14L1.

LOCATION.--Lat 47°13'08", long 122°30'55", Hydrologic Unit 17110019.

Owner: Town of Fircrest, well No. 8.

AQUIFER.--Glacial sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 20 in, depth 141 ft, cased to 112 ft.

DATUM.--Elevation of land-surface datum is 295 ft.

PERIOD OF RECORD.--October 1970 to September 1985 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.21 ft below land-surface datum, Apr. 24, 1972; lowest measured, 98.81 ft below land-surface datum, Mar. 10, 1981. Water levels affected by nearby pumpage.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 10	85.27	JAN 25	81.22	MAY 23	84.02	JUL 24	88.12
NOV 26	85.62	MAR 25	82.02				

471338122282201. Local number, 20/3-18C1.

LOCATION.--Lat 47°13'38", long 122°28'22", Hydrologic Unit 17110019.

Owner: City of Tacoma.

AQUIFER.--Glacial sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Drilled unused test artesian well, diameter 12 in, depth 185 ft, cased to 152 ft.

DATUM.--Elevation of land-surface datum is 310 ft.

PERIOD OF RECORD.--March 1952 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.85 ft below land-surface datum, Oct. 5, 1954; lowest measured, 127.38 ft below land-surface datum, Mar. 27, 1974. Water level measurements are affected by nearby pumpage.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 24	101.58	JAN 25	99.88	APR 25	99.08	JUL 24	112.18
NOV 26	100.88	FEB 25	99.68	MAY 23	108.28	AUG 26	104.28
DEC 21	100.48	MAR 25	99.28	JUN 21	109.18		

SPOKANE COUNTY

474011117072901. Local number, 25/45-16C1.

LOCATION.--Lat 47°40'11", long 117°07'29", Hydrologic Unit 17010305, near Greenacres.

Owner: Inland Empire Paper Company.

AQUIFER.--Glacial sand and gravel of Pleistocene Age.

WELL CHARACTERISTICS.--Dug unused irrigation water-table well, diameter 96 in, depth 129 ft, lined with gunite cement to 129 ft.

DATUM.--Elevation of land-surface datum is 2,060.4 ft National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--April 1929 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.56 ft below land-surface datum, June 17, 1953; lowest measured, 114.53 ft below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 26	102.30	JAN 23	103.45	APR 29	98.36	JUL 23	103.85
NOV 21	102.22	FEB 21	104.47	MAY 23	98.09	AUG 26	105.22
DEC 20	101.71	MAR 26	103.95	JUN 25	99.89	SEP 25	104.45

460014118281801. Local number, 6/35-18A1.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 to 8 in, depth 1,308 ft, 12-in diameter casing from 0 to 273 ft, 10-in diameter casing from 250 to 680 ft, 8-in diameter casing from 670 to 730 ft, perforations from 90 to 230 ft and from 710 to 730 ft.
DATUM.--Elevation of land-surface datum is 670 ft.
REMARKS.--Monitored depth interval from 90 to 230 ft, water level measured in 12-in diameter casing.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.7 ft below land-surface datum, Mar. 17, 1980; lowest measured, 45.70 ft below land-surface datum, Jan. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 24	27.35	FEB 26	26.81

460014118281802. Local number, 6/35-18A2.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 to 8 in, depth 1,308 ft, 12-in diameter casing from 0 to 273 ft, 10-in diameter casing from 250 to 680 ft, 8-in diameter casing from 670 to 730 ft, perforations from 90 to 230 ft and from 710 to 730 ft.
DATUM.--Elevation of land-surface datum is 670 ft.
REMARKS.--Monitored depth interval from 710 to 730 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.20 ft below land-surface datum, Apr. 1, 1974; lowest measured, 200.8 ft below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 24	159.20	FEB 26	147.10

460014118281803. Local number, 6/35-18A3.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in, depth 1,308 ft, 12-in diameter casing from 0 to 273 ft, 10-in diameter casing from 250 to 680 ft, 8-in diameter casing from 670 to 730 ft, perforations from 90 to 230 ft and from 710 to 730 ft.
DATUM.--Elevation of land-surface datum is 670 ft.
REMARKS.--Monitored depth interval from 740 to 1,204 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.10 ft below land-surface datum, Apr. 1, 1974; lowest measured, 201.0 ft below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 24	159.99	FEB 26	147.92

460014118281804. Local number, 6/35-18A4.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in, depth 1,308 ft, 12-in diameter casing from 0 to 273 ft, 10-in diameter casing from 250 to 680 ft, 8-in diameter casing from 670 to 730 ft, perforations from 90 to 230 ft and from 710 to 730 ft.
DATUM.--Elevation of land-surface datum is 670 ft.
REMARKS.--Monitored depth interval from 1,216 to 1,308 ft, water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.60 ft below land-surface datum, Apr. 1, 1974; lowest measured, 201.9 ft below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Water Level	Date	Water Level
OCT 24	160.55	FEB 26	148.47

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	$2.54x10^{1}$	millimeters (mm)
	$2.54x10^{-2}$	meters (m)
feet (ft)	$3.048x10^{-1}$	meters (m)
miles (mi)	$1.609x10^{0}$	kilometers (km)
	Area	
acres	$4.047x10^{3}$	square meters (m^2)
	$4.047x10^{-1}$	square hectometers (hm^2)
	$4.047x10^{-3}$	square kilometers (km^2)
square miles (mi^2)	$2.590x10^{0}$	square kilometers (km^2)
	Volume	
gallons (gal)	$3.785x10^{0}$	liters (L)
	$3.785x10^{0}$	cubic decimeters (dm^3)
	$3.785x10^{-3}$	cubic meters (m^3)
million gallons	$3.785x10^{3}$	cubic meters (m^3)
	$3.785x10^{-3}$	cubic hectometers (hm^3)
cubic feet (ft^3)	$2.832x10^{1}$	cubic decimeters (dm^3)
	$2.832x10^{-2}$	cubic meters (m^3)
acre-feet (acre-ft)	$1.233x10^{3}$	cubic meters (m^3)
	$1.233x10^{-3}$	cubic hectometers (hm^3)
	$1.233x10^{-6}$	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	$2.832x10^{1}$	liters per second (L/s)
	$2.832x10^{1}$	cubic decimeters per second (dm^3/s)
	$2.832x10^{-2}$	cubic meters per second (m^3/s)
gallons per minute (gal/min)	$6.309x10^{-2}$	liters per second (L/s)
	$6.309x10^{-2}$	cubic decimeters per second (dm^3/s)
	$6.309x10^{-5}$	cubic meters per second (m^3/s)
million gallons per day	$4.381x10^{1}$	cubic decimeters per second (dm^3/s)
	$4.381x10^{-2}$	cubic meters per second (m^3/s)
	Mass	
tons (short)	$9.072x10^{-1}$	megagrams (Mg) or metric tons

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